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SUN TO HELP ADD J2ME TO ARM PROCESSORS

Jazelle cores to be Java certified in first formal agreement between companies

BY EDWARD J. CORREIA

Sun Microsystems Inc. has joined forces with ARM Ltd., maker of 16- and 32-bit RISC processors and processor cores, to incorporate a Sun-certified implementation of Java 2 Micro Edition into ARM's Jazelle line of Java-accelerated processors and cores. The companies also have agreed to collaborate on development of future embedded technologies.

The collaboration effort will center around the wireless handheld space, says ARM's Au.

Although the company has been shipping JVM-equipped Jazelle technology (www.arm.com/armtech/jazelle) in its ARM7 Thumb and ARM9 Thumb since late last year, ARM had yet to ink a deal with Sun. "This is a new agreement between the companies," said Rich Green, vice president and general manager of Java software for Sun. "We've had discussions in the past, but this is the first formal relationship between the two companies, and it underscores not just the optimization in silicon of virtual machine technology, but

▸ continued on page 23

Oracle, Sun Target ASP With JSP Kit

BY ALAN ZEICHICK

As usual, Oracle Corp. and Sun Microsystems Inc. are ganging up on Microsoft Corp. The message: Developers should abandon Microsoft's Active Server Pages and use Sun's Java Server Pages instead, hosted on a Solaris server running on Oracle's new Oracle9iAS J2EE application server. The weapon: a new ASP-to-JSP migration kit, jointly developed by the two companies, which they claim will be available for free download from http://technet.oracle.com/tech/migration/asp before the end of August. It will be available in beta form in July, they said.

John Magee, senior director of marketing for Oracle9iAS, said the Oracle Migration Kit for ASP will help companies move "to take advantage of the more open environment," adding that Microsoft's .NET is proprietary but Java is less so, because it's developed using a community process.

According to Magee, the ASP migration kit contains tools that convert ASP scripts to JSP for deployment on Oracle9iAS. The second phase uses additional tools that help developers add new application features that are unique to Java and J2EE.

Michael Bohlig, director of Sun's Oracle Business Unit, insisted that there is nothing Oracle-specific in the migration kit that preludes it from being used with other application servers, such as the iPlanet Application Server, which is owned by a Sun/AOL joint venture. "We're simply trying to encourage developers to move to J2EE," he said. Oracle's Magee agreed that the kit is focused on J2EE, but added that it is "optimized" for the Oracle application server.

This is the third migration kit targeted at Microsoft shops. Sun offers a Windows-to-Solaris kit for download from http://soldc.sun.com/ntmigration. Oracle has a Migration Workbench that helps organizations move from Microsoft's SQL Server and Access to Oracle's database products, at http://technet.oracle.com/tech/migration/workbench. ▮

Gates: Future Will Require 'Developer Agility'

At Tech-Ed, Microsoft chairman says tools must keep pace with Web advances

BY DAVID RUBINSTEIN

ATLANTA — While the second beta releases of the .NET Framework and Visual Studio.NET took center stage at Microsoft's Tech-Ed 2001 Conference, chairman and chief software architect Bill Gates outlined other developer productivity tools and services that will help realize the company's Web services strategy.

FOR MORE ON Microsoft Tech-Ed 2001 SEE PAGE 12

In a keynote address before roughly 8,800 conference attendees, Gates proclaimed XML as the "protocol for this era," saying that it demands advances in developer tools and the servers on which the new Web services and other Web-based applications will run.

In his address, Gates said development today is about developer agility—"agility meaning the ability not only to build new applications, but take the ones you have and modify them for your business needs. It really fits the whole business theme that exists today, and what most people refer to as the post dot-com era," he said, "an era where getting things done quickly and with reasonable budgets is of renewed importance."

One problem facing the Web services world, Gates said, is that each company using Web services defines them differently, with a lot of "domain expertise" required to get information available everywhere. Therefore, Gates announced, Microsoft has set up a so-called Shared Development Process (SDP), which he described as a framework in which customers and industry partners can cooperate to standardize definitions and mechanisms for the creation of Web services. The obvious analogy here is to Sun's Java Community Process, but Gates never alluded to the JCP during his address.

Web services will require standard definitions, says Microsoft's Gates.

According to Gates, an extended set of HailStorm—a suite of Web services based on the MSN online service—will be defined as the SDP's first project. The SDP will get a test run this summer with working groups set up to extend HailStorm services, Microsoft said. Meanwhile, Microsoft will ship a UDDI Developer Edition, which will allow developers to run a local copy of the UDDI registry within Visual Studio.NET for testing before actually posting a live registry.

To further integrate Microsoft's products into the .NET vision, Gates said the server

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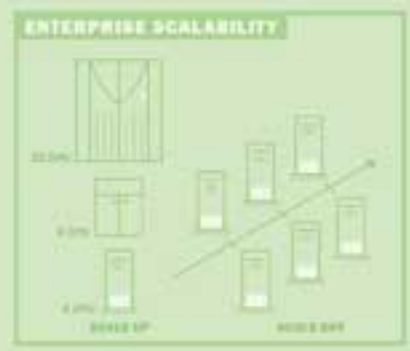

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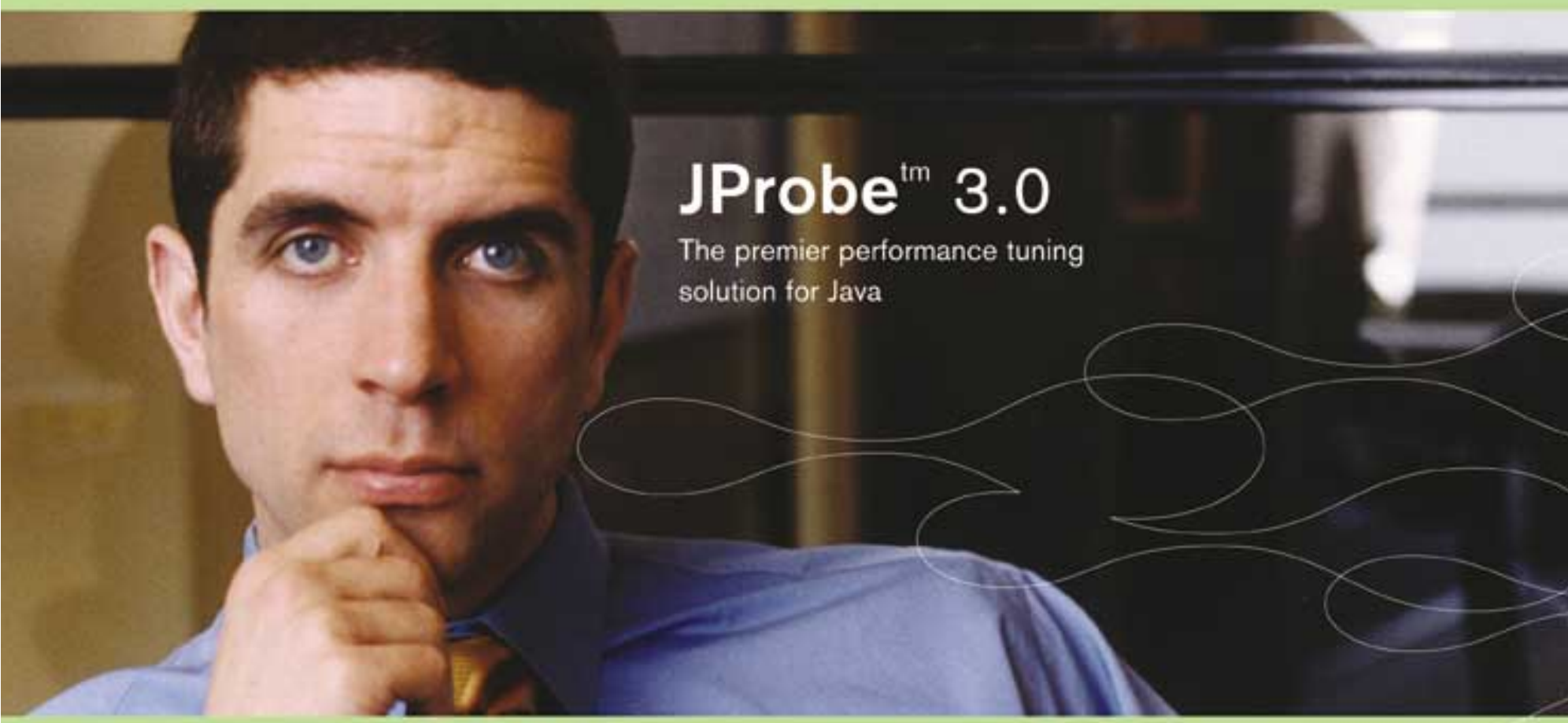

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Microsoft Embraces FreeBSD, ISO

BY ALAN ZEICHICK

For months, Microsoft Corp. has been claiming that its newfound commitment to open standards is genuine—but to date, the first fruits of that stated position, such as submitting its C# language to the ECMA vendor consortium and unveiling a "Shared Source" strategy that seemed to be essentially an attack on the GNU's General Public License, have failed to be convincing. With two new announcements, made a week after its Tech-Ed conference in Atlanta in June, the company is making a more credible show of open-mindedness.

First, Microsoft announced that under its Shared Source licensing scheme, it is building versions of its C# compiler and Common Language Infrastructure (CLI) runtime environment for both Windows and FreeBSD. According to Tony Goodhew, product manager for this initiative, the source code for those versions will be freely available for any noncommercial use—and noncommercial is interpreted broadly, he said, to encompass any activity where the source code or derivative works aren't sold. Companies can modify and use the source code internally, in production environments, he said, or port it to additional operating systems, such as Linux. The modified source code will still have to be used according to the provisions of Microsoft's Shared Source license, he said.

Why FreeBSD? "It has a history of unencumbered experimentation," said Goodhew, "and a license that's well suited to our Shared Source plans."

The C# compiler is written in C++, said Goodhew, while the CLI code has its core functionality written in C++ and its base classes written in C#. Microsoft also is preparing a Shared Source version of the ECMAscript interpreter, he said; ECMAscript is the organization's version of JavaScript. According to Goodhew, beta versions of the C#, CLI and ECMAscript code will be available in the first half of 2002, with final versions expected later that year.

Goodhew said, however, that the versions of C# and CLI that will be offered as Shared Source will be different from the company's commercial .NET versions. The Shared Source versions are reference implementations that encompass only the parts of those technologies that Microsoft has submitted to ECMA; Microsoft's commercial software has additional functionality that has not been opened up for standardization. For example, he said, all of the CLI base classes were submitted to ECMA, but the CLI's rich user interface features, Windows forms, ADO .NET, and ASP.NET APIs and functions were not.

Goodhew also stated that while C# and CLI are expected to be approved by ECMA by December, that's not the end of the line—and that the company intends to submit both specifications to the International Organization for Standardization (ISO). Because the ISO has given ECMA specifications "fast track" status within its approval process, Goodhew expects both C# and CLI to be approved by ISO by June or July 2002, giving them the same status as programming languages like C++, COBOL or SQL. ▮

Quickstream Serves Content Via Web Services

BY ALAN ZEICHICK

The latest version of Quickstream's Java-based content-management system, e-Content Platform (eCP), is designed to offer developers additional hooks to integrate the software to existing applications, as well as those using XML and Web services. The platform serves documents to users or applications through a Java Server Pages front end, which communicates with databases via a back-end server that provides shared functions such as document tracking, check-in and check-out, version control and access control.

e-Content Platform 3.3 is based on a Java-based back-end server called the Engine, and then a Java Server Pages-based front end that serves browser-based clients, according to Quickstream founder and CTO Eric Westerkamp. Although most applications using the back-end Engine use JSP, Westerkamp said that the company also has a set of APIs that directly expose the Engine's objects. Previous versions of eCP exposed only limited functionality through those APIs; the new 3.3 release makes all back-end functions available through those APIs using Java applets. "You can access objects which will delete documents, deliver previous versions and check out documents," from a content database, he said, adding that the system is designed to work with any form of unstructured documents, such as Excel documents or Web pages.

At present, the engine is a dedicated Java-based application from Quickstream, which runs directly on Linux, Unix or Windows. According to Westerkamp, the eCP 4.0 release, due out in the fourth quarter, will encapsulate all the back-end functions as a set of Enterprise JavaBeans, so that it can also be run on a J2EE application server. The eCP back end communicates with relational databases via JDBC calls.

Quickstream (www.quickstream.com) is preparing two add-ons to accompany the eCP 3.3 release. A business-to-business toolkit, currently in beta, provides an XML version of the API set, according to Westerkamp, and allows the eCP application to be exposed as a Web service, with documents accessible via SOAP calls.

At the end of June, Quickstream was to deliver what Westerkamp called a replication application, which uses IIT GmbH's SwiftMQ JMS-compliant message queue to enable programmable replication of documents between different eCP servers. The JMS queue also can be used for other messaging applications, said Westerkamp.

Pricing for eCP 3.3 is on a per-user basis, with the entry-level system costing $15,000 for 25 users. OEM licensing is available. ▮

News Briefs

COMPANIES

Microsoft Corp. has added **RealNames Corp.**'s naming services to the Microsoft Universal Description, Discovery and Integration (UDDI) registry site. By using RealNames' Keyword Registries and Registrars, located on the Internet Explorer toolbar, companies can automatically publish their business information through the UDDI site . . . **Headway Software Inc.** has integrated its reView visual-mapping tool into **Sun Microsystems Inc.**'s Forte for Java IDE. reView generates visual representations of static source code and shows dependencies within the application. Headway has also partnered with **Tom Sawyer Software** to incorporate Tom Sawyer's graphical layout technology into Headway's reView, while Tom Sawyer will use reView within its development process and to demonstrate its products . . . **SeeBeyond Technology Corp.** and **Information Architects Corp.** (IA) have signed an agreement to tie SeeBeyond's eBI Suite with IA's Enterprise Internet Infrastructure to integrate and distribute specific fragments of content in real time, from any type of database or application, both internally and with business partners across the Web. The companies maintain that developers will be able to view, associate and combine data in real time while maintaining a clean separation between content and presentation . . . **IBM Corp.** and **National Semiconductor Corp.** have joined forces to create a development platform for home gateways, using National's Geode processor and IBM's WebSphere application server. The joint platform, to be available in August, is designed to help developers reduce development time . . . **Wasabi Systems Inc.** has completed a port of the NetBSD open-source operating system to IBM's PowerPC 405GP processor, a 32-bit reduced instruction set chip . . . **Wily Technology Inc.** has integrated its Introscope Web application monitor product with **Hewlett-Packard Co.**'s Hotspot Java Virtual Machine.

PRODUCTS

Lead Technologies Inc. now offers compression/decompression components for the new JPEG 2000 Part I specification for still images. The new **LeadTools JPEG 2000** module is available as a plug-in to the company's LeadTools 12.1 imaging toolkit . . . WRQ Inc. has upgraded its Web-to-host software. The new **Reflection for the Web 4.5** includes an integrated FTP client as well as local printing and host command passthrough for HP-3000 minicomputers, and TN3278 support for IBM mainframe printers. **Reflection 8.0.6** adds SSL/TLS and SSH security to encrypt session passwords. Both were shipping in June . . . A major extension to Dundas Software's charting software, called **Dundas Chart 2D**, adds 2D capabilities to the company's 3D chart-making program, and enables developers to incorporate charting components into the Web without the need to install plug-ins into the browser . . . InCert Software Corp.'s **TraceBack 2.0 for Windows** now supports Visual Basic as well as real-time application monitoring. Developers can view the source code for their deployed applications, and get real-time e-mail when an application crashes or hangs due to memory problems. TraceBack 2.0 will be available in August . . . Epicentric Inc.'s new **Modular Web Services** toolkit enables independent software vendors to create, host and share Microsoft-based services that can be purchased over Epicentric's Web site for company use . . . PrismTech Corp. is shipping its new **Open Fusion Version 2.5 J2EE and CORBA Services** program that supports Java Message Service, CORBA Notification and Log services, and has begun beta testing its **Open Fusion Enterprise Message Server**, a JMS enterprise messaging software that will support integration based on the open J2EE/JMS, while further providing out-of-the-box connectivity to CORBA, SOAP, IBM MQSeries and TIBCO middleware . . . Applied Microsystems Corp.'s **CodeTest** for the QNX real-time operating system is now shipping, enabling developers to generate real-time measurements necessary to pinpoint critical performance and quality issues. CodeTest isolates defects, tracking them from the operating system boot-up through application operations within a 100-nanosecond time frame . . . RSA Security Inc.'s **RSA BSafe Wireless Core** encryption technology gives developers a means to build ▸ continued on page 17

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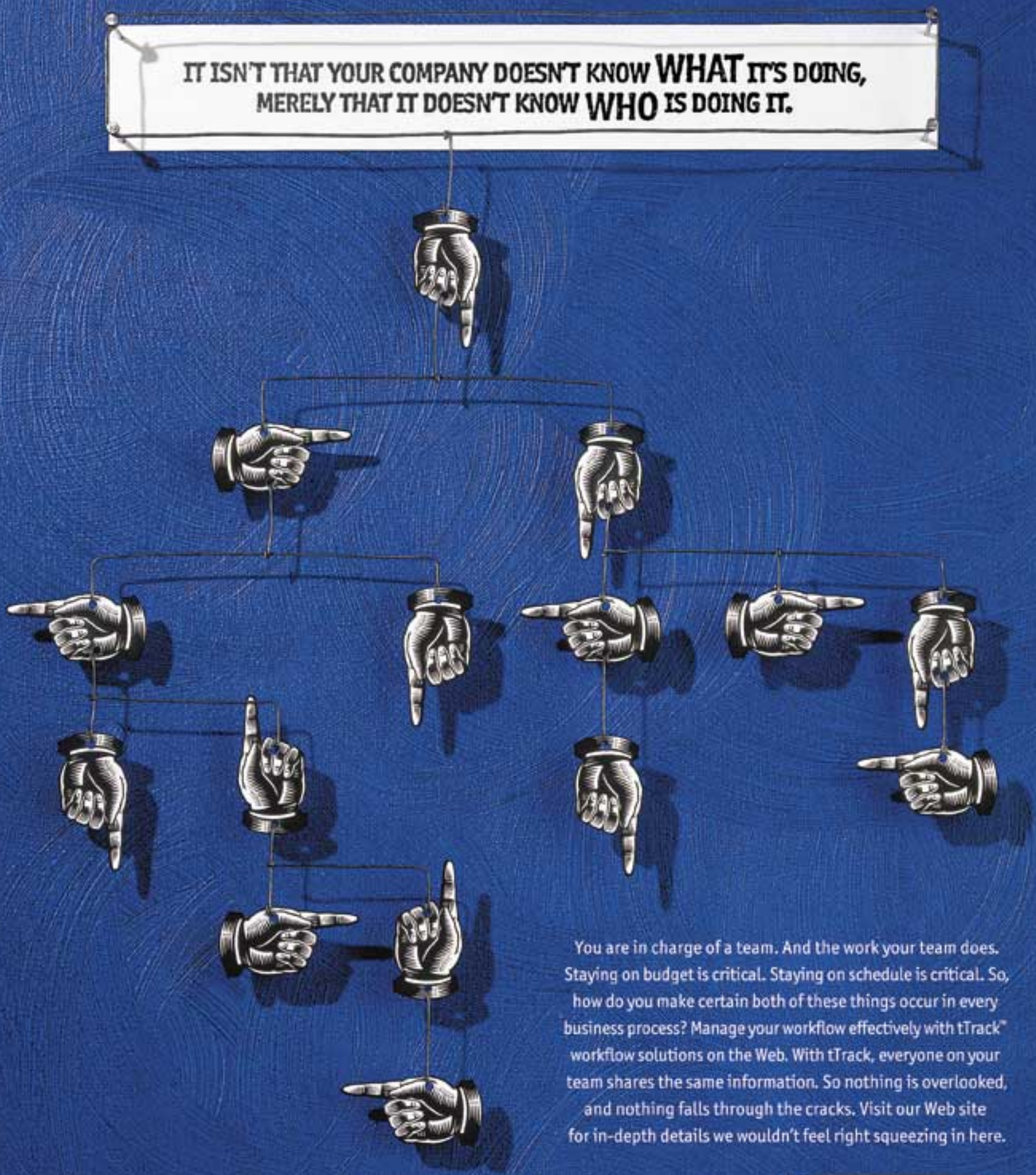

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Multiplatform Changes Within a Single Environment

Serena's ECP synchronizes both mainframe and distributed software fixes

BY DOUGLAS FINLAY

Serena Software Inc. is set to release version 3.1 of its Enterprise Change Packages (ECP) change-management software at the end of July. The company claims this version will provide cross-platform links between mainframe and distributed environments so that changes taking place on both platforms can be facilitated within a single environment.

Mark Woodward, Serena's (www.serena.com) CEO, explained, "We think we now have the Holy Grail of change management, by offering the ability to manage the software development life cycle and the deployment of applications, developing them in any language on any platform, and coordinate any changes at the application level rather than simply at the platform level. No one else in the industry is even close to that."

Serena has the 'Holy Grail of CM,' says Woodward.

Chuck Henderson, Serena's director of marketing, said that ECP would be able to synchronize the nomenclature and process common within both environments and provide for a link between applications "so that the change packages on both the distributed environment and the mainframe environment are aware of each other." Packages are groups of components that make up an application, such as JavaBeans, servlets, libraries and files.

Henderson said developers would benefit from the integrated solution because, rather than having to go to each environment to track and review reports of the changes, a more time-consuming endeavor, "developers and QA managers could instead go into OS/390, Unix and NT environments to manage, report and administer the change process for the entire application from that single source." He said any changes to HTML and Java in a distributed environment would be linked with changes taking place in COBOL copybooks and DB2 tables within the mainframe environment, for example.

Woodward then added that once all changes had been completed within the process, "developers cannot just move the process next into production without joint approval. They cannot independently promote one process over another." Changes to applications would move at the same time into production at the push of a button, he said.

ECP runs on a Windows server, and requires connections to both distributed systems and the mainframe via TCP/IP. ■

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XML Server Focuses on RosettaNet 2.0 Specs

BY DOUGLAS FINLAY

Aiming squarely at what it considers the first real standards-based framework for business-to-business transactions to mature and reach critical mass, Infoteria Corp. introduced the Asteria Enterprise Server, designed specifically to implement RosettaNet 2.0 for trading-partner environments. The Asteria Enterprise Server is an XML-based server that expands and manages the security of RosettaNet's supply-chain trading partners.

Tim Brown, Infoteria's (www.infoteria.com) CEO, said, "If you look at ebXML, BizTalk, cXML and other business-type standards now being developed, RosettaNet is so far ahead of them in that they have a defined set of Partner Interface Processes, and a good part of the industry is committed to using them."

Infoteria evangelist Mike Damphousse said, "The [Asteria] Enterprise Server is a completely scalable server that can act as an appliance that large corporations can urge their smaller supply-chain trading partners to use as an out-of-the-box solution." He said that large companies, which may have a thousand or more trading partners, are eager to get those partners online because "the true benefit of any business-to-business system such as RosettaNet is to get the trading partners trading."

According to Damphousse, the Enterprise Server would serve three main functions in a business-trading environment. The first function would be to handle transactions, communications to trading partners, and security wrapping for message validations. The second function, he said, would handle all the business process framework standards, such as the RosettaNet Implementation Framework 2.0, so that if a partner sends a purchase order out and there is acknowledgement, it is a good purchase order in that it follows the rules. It further handles all the internal lifting such as building, transacting and storing information.

Its third function would be to integrate existing back-end systems, so that items such as purchase orders could be created in back-office systems, sent to the Enterprise Server, processed by adding trading partner ID numbers, headers, documentation and MIME configurations, and then sent to the partner.

Damphousse said that the server is built on a plug-in architecture, noting that the server currently acts as a RosettaNet server through a RosettaNet plug-in, but that other business plug-ins could be added to the server to make it address those needs. "One could easily plug in a cXML plug-in and [Asteria] would then become an Ariba routing server." He added that developers could also write custom plug-ins using JavaScript.

He said Infoteria would soon be offering Asteria plug-ins for ebXML and for NewsML, which is an XML Schema used in the news industry for sharing text, announcements, photos and video.

Asteria Enterprise Server licensing starts at $80,000 for five trading partners, and will be available in September. ▮

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Grand Central Stations Web Services

BY DAVID RUBINSTEIN

The benefits of exposing enterprise applications as Web services, accessible to partners over the Internet using SOAP and XML, can be compelling. Yet for many organizations, a barrier may be the resources to set up the servers and a network infrastructure required to securely and reliably host those Web services. The complexities of installing and configuring message-oriented middleware, for example, can be daunting, particularly for small organizations.

When customers have a problem, the market often has a solution—and for Web services hosting, the new solution may be to work with an application service provider to host those services on the customers' behalf, with the ASP acting as a central hub for the routing of messages. One company entering that space is Grand Central Networks Inc. (www.grandcentral.com), which went live with its service last month. It is free for users connecting to one partner and slides up based on the number of partners and megabytes of data moved.

When asked about the many messaging middleware products that already feature reliability, security, authentication and failover, Grand Central CEO Craig Donato explained that while the infrastructure for one-to-one or one-to-many transactions is in place, it is in the area of many-to-many networks that commonality is needed. He described Grand Central's offering in layers of functionality, such as secure, reliable messaging; tools and services to manage and provision exposed interfaces; a rules engine for prioritization; and metering and billing, calling them necessary for true network integration.

"Every business will ultimately look like a portal, and everyone wants to be a hub," he said. "This architecture allows everyone to be a hub without negative hard-wiring. We've identified a layer of services that need to be at all points" of transactions.

According to Peter O'Kelley, an analyst with the Patricia Seybold Group, "Grand Central helps companies unwilling to spend the money on a server infrastructure or that lack the technical capability to take [Web services] to the next level." O'Kelley claimed that in large enterprises, the infrastructure for Web services is in many cases already in place. "Today this is a compelling solution, but it ultimately should become simpler for a broad range of companies" to create, deploy and consume Web services, he said.

What about messaging middleware such as Sonic's SonicMQ and IBM's MQSeries? O'Kelley said, "Those are things that need developer expertise. It's important to get the mom-and-pop operations on board" with Web services.

SOAP, XML, WSDL and UDDI—"they are on the level of 'Watson, come quick, I need you,' " O'Kelley said, and are the very first pages of the Web services story, with growth and innovation coming in the areas of authentication and shared spaces, as well as business-process automation. "Businesses must think about the contextual things that go with Web services," he said. "This is Grand Central's take on a combination of supplemental services." ■

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Zero G Adds Power to Updates

BY DOUGLAS FINLAY

Now available from Zero G Software Inc., new versions of the PowerUpdate family of installation services eliminate the need for developers to contact users about software updates, and provide better reporting and extensible APIs not provided by the original PowerUpdate hosted service introduced last year.

Available as a hosted service or as a stand-alone server-based installer, Zero G's (www.zerog.com) PowerUpdate delivers usage and product delivery information to developers. The two new versions of the installation program, PowerUpdate Pro and PowerUpdate Server, provide an SDK that lets developers check for file presence prior to installation, look up file modifications and usage data, execute a Web page, and merge Windows registry files.

A Web-based interface takes developers through the process of setting up the service so that, when completed, they can download it as a PowerUpdate client, which checks for an updated executable and then adds it to the target application. Updates can then be invoked automatically.

PowerUpdate Pro, offered as a hosted service starting at $1,200, includes built-in rules and actions and what the company describes as an extensible open API and extensive reporting capabilities. PowerUpdate Server, at $13,600, depending on the number of end-point and server CPUs, offers all the PowerUpdate Pro functionality but is available as a stand-alone server application.

The original version of the service, PowerUpdate Now, is available free at www.powerupdate.com; the free version does not include reports or APIs. ▮

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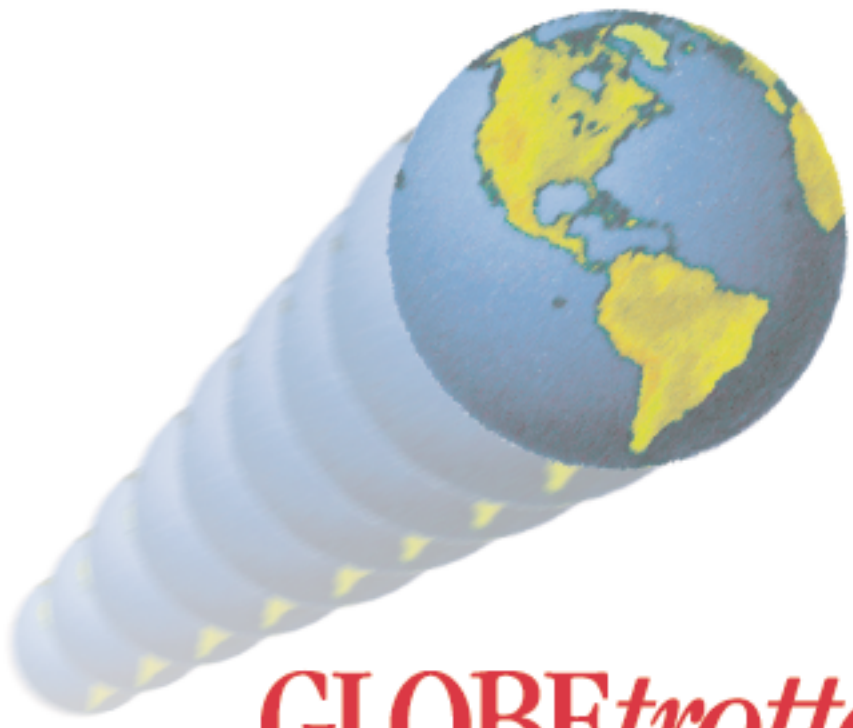

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Drag-and-Drop Web Services

BY ALAN ZEICHICK

It doesn't have to be difficult to assemble Web services—at least not according to Cory Casanave, president of Data Access Technologies Inc. The company's new Component-X IDE applies the graphic development model to server-side components, which can then be exposed as Web services using ebXML, HTTP, SOAP and XML by deploying them to a Component-X server, he claims. Further, components turned into Web services, using Component-X, can be traded in a marketplace that the company is developing.

Data Access has released version 1.0 of the Windows-based Component-X IDE at www.enterprise-component.com; the version, called Standard Edition, is available free of charge, according to Casanave, but can be used only for developing and testing Web services—it lacks the ability to deploy them. That will require a separate deployment package, which Casanave said will be available in the third quarter.

The basic stand-alone deployment package for a single server will cost $1,500 per CPU. There will also be a license for server farms, said Casanave, but the pricing has not yet been set. Deployment packages will be available for generic J2EE application servers with Java servlet capability, he said. ▮

GATES

◂ continued from page 1

operating system formerly known as "Whistler" will be renamed Windows.NET Server and will include the .NET Framework, which comprises such components as the Common Language Runtime, class libraries, ADO.NET and XML, and forms for Win32 applications. In April, Microsoft had said that the Whistler server operating system would be named Windows 2002 Server; this represents a change from that announcement. The operating system is still set to ship early next year, he said.

Gates also said that with the shipment of Windows XP, its new flagship desktop operating system, later this year, all varieties of Windows for the first time, from home users to 32-bit processor servers, will use the same Windows NT code base and will all have the same capabilities under the .NET architecture. Because of this, Gates explained, clients using Passport, the single-sign-on feature of MSN, will have full integration with ActiveDirectory on the server, and will no longer need to authenticate themselves one way for the Internet and another way for corporate networks. Citing the fact that Microsoft's messaging middleware, MSMQ, now uses SOAP and that COM+ has been integrated into the .NET Framework, Gates said the server release "is a great evolution of the whole story here for rich development."

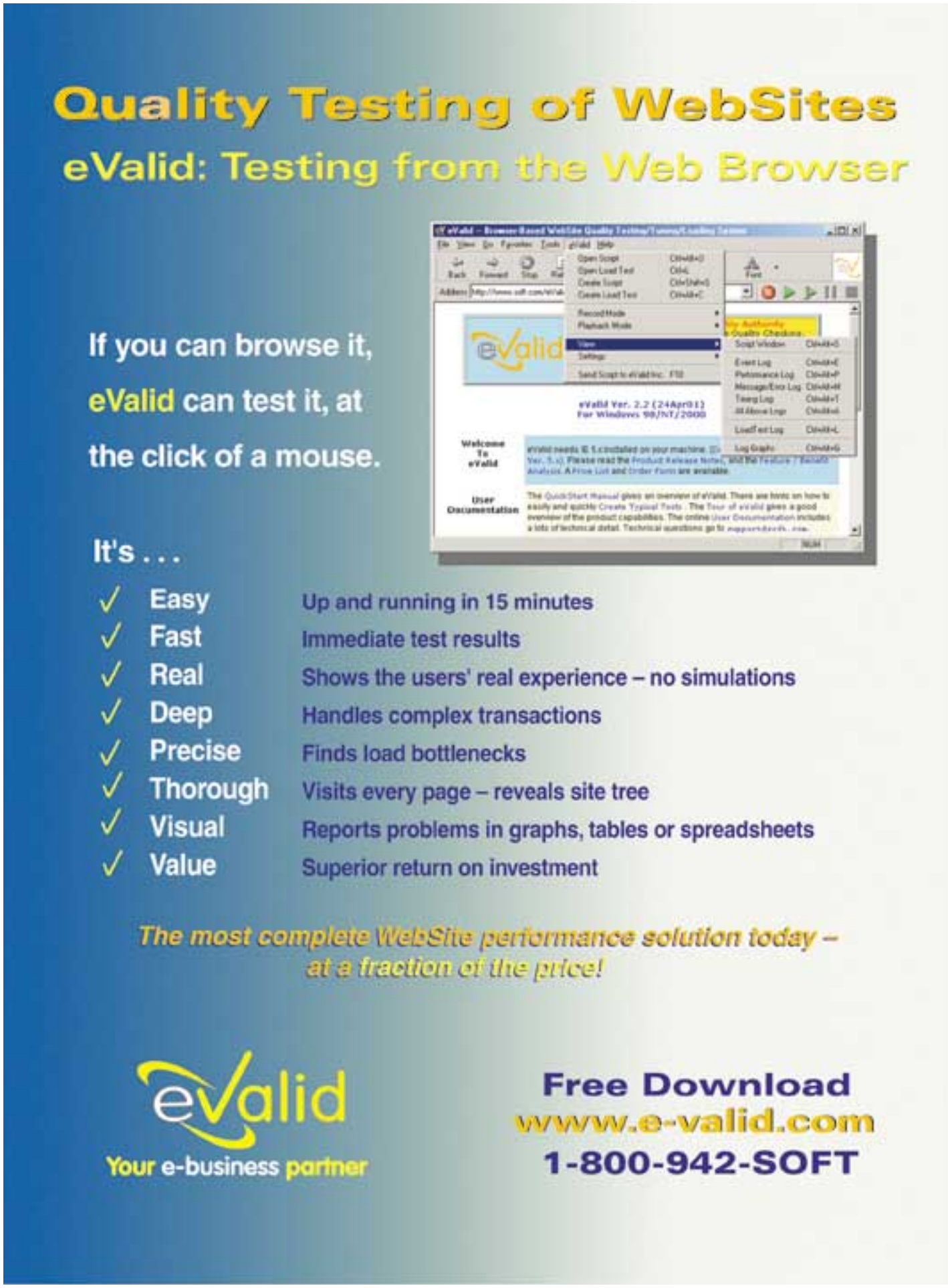
During Tech-Ed, Microsoft also marked the 10-year anniversary of Visual Basic by extending the language with new constructs and improving compatibility between Visual Basic 6 and Visual Basic.NET, which will be a part of the final Visual Studio.NET release. VB.NET, according to product manager Ari Bixhorn, will be able to find Web services components from within the IDE to make it easier for developers to write applications as XML Web services. After the first beta of Visual Basic.NET, developers insisted on some semantic changes to make it more compatible with earlier VB iterations, and Bixhorn claimed that developers were satisfied with those alterations. Among new features in Visual Basic.NET are the ability to define a window in any shape desired, control anchoring and docking, and optional constructs that Bixhorn said "give added headroom" to developers.

Microsoft's announcements came two weeks after Sun Microsystems Inc.'s JavaOne conference, at which Sun president Ed Zander urged developers to resist .NET because it is proprietary and nothing more than "vaporware."

When asked how he would respond to Zander's remarks, Microsoft's Visual C++/C# product manager Nick Hodapp said, "I'd give him a copy of the [.NET Framework and Visual Studio.NET] beta 2 releases. People are live and in production with this technology."

Hodapp said Microsoft will make a Visual Studio plug-in available for developers to swap snippets of code to further the use of the Microsoft solution for Web services within the developer community. It is available now at www.vscodeswap.net.

Dave Mendlen, lead product manager for Visual Studio.NET and MSDN, said the whole point of Web services standards is that "whether you buy IBM or Microsoft, you're buying systems that Web services can go across. XML is a great equalizer. But we have better tools and services and that's the battle we'll fight."■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Vendors Rally Behind .NET Framework

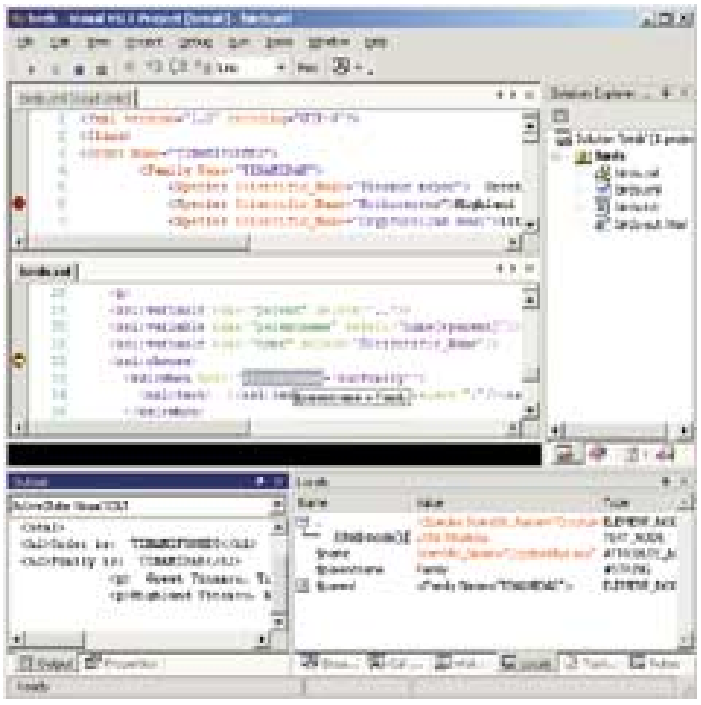
Development tools, components timed to Visual Studio.NET release

BY DAVID RUBINSTEIN

ATLANTA — While most of the third-party software companies exhibiting at Microsoft's Tech-Ed conference were offering tools for storage management, performance tuning and systems administration, the show floor also hosted developed tools targeted at e-business and Web applications.

Open-source-tool provider **ActiveState Inc.** released Visual Perl, Visual Python and Visual XSLT for Microsoft's Visual Studio.NET beta 2. These tools will allow developers to develop for those languages using Microsoft's Visual Studio.NET IDE, according to ActiveState senior developer Eric Promislow. At the end of May, ActiveState also was due to release PerlNET, a separate product included in ActiveState's Perl Developers' Kit, which Promislow explained is a way for developers to create .NET components from native Perl, using a compiler that brings Perl code into Microsoft's .NET Framework Intermediate Language. Visual Perl is available for $495; the other two language kits are available in beta as free downloads from www.activestate.com/aspn.

Fujitsu Software Corp. is integrating its COBOL compiler into Visual Studio.NET through Microsoft's Visual Studio Integration Partner program. The company claims this integration will help speed integration of legacy code into Web-enabled applications through a single development environment. The company plans to release the upgraded product later this year.



The editor pane in ActiveState's Visual XSLT has been organized to display both the XML input file and the XSLT program.

IT Factory Inc. announced a visual development tool for collaborative knowledge management applications on Microsoft's Exchange 2000 and SharePoint Portal Servers. The ITF Development Center provides an interface within Microsoft's Visual InterDev Web development system, according to the company, which developers can use to speed creation of applications. Developers use the visual development tool for objects, properties and methods, while the Development Center automatically maps and links to Exchange or SharePoint through a server extension that also enables creation of SOAP objects. A runtime server extension allows developers to incorporate collaborative capability such as threaded discussion management into their applications. Development Center is expected to be available later this month at a starting price of $1,495 per developer.

Mainsoft Corp. previewed Visual MainWin for .NET, an application-porting platform that lets developers compile or take Visual C++ applications natively to Unix and Linux platforms, according to area technical manager Andy Milo. With a configuration control panel integrated into Visual Studio.NET, developers can deploy applications to multiple targets from within the IDE to provide native code, not merely emulation, he said. Pricing has not been set; the tool is expected to ship toward the end of the year. Unix platforms supported include AIX, HP-UX and Solaris.

For companies assembling Web services based on data culled from large, complex databases, **Antarcti.ca Systems Inc.** has made available Visual Net Enterprise, a graphical search and discovery tool that enables users to browse through data and get a visual display of the metadata presented as a large-scale map, according to the company.

COMPONENTS

Several component vendors stepped forward with new products that target the .NET platform and will become available when Visual Studio .NET becomes generally available late this year.

Infragistics Inc. is now shipping version 2 of its UltraSuite and UltraGrid components, and previewed UltraGrid for .NET. New features to UltraGrid, which is now included in UltraSuite, include printing and print-preview capabilities as well as improved data formatting. New extensibility features in UltraGrid include a way to rotate column headers and to get band totals, according to Bob Wolf, vice president of sales and marketing.

Also, Infragistics released into beta UltraServerTree, which renders HTML or DHTML to a browser with no controls necessary, and UltraListBar, a Windows Forms control that applies appearance properties to the controls. They are available at www.infragistics.com. Wolf said he expects UltraServerTree Studio, an applet for designing and rendering trees to HTML, to be integrated into Visual Studio.NET as a design tool.

ComponentOne LLC announced add-ons to Visual Studio.NET, including components for charting, querying, reporting, print preview and help authoring, as well as grid controls and data components that take advantage of ADO .NET. Channel sales manager Michael Ross said the products will become available around the same time that Visual Studio .NET is released late in the year.

Protocol components from **VisualSoft Technologies Ltd.**, such as VisualSoft FTP Web Service and VisualSoft HTTP Web Service, will complement the .NET Framework with such services as data transfer, management and presentation, according to the company. Web services or applications developed in any language can access the FTP Web Service from any device to ease file transfers. FTP Web Service can abort a data transfer or resume transfer after a network crash, according to the company. Web Service provides access to the HTTP protocol for authentication, file uploading from a local server to a Web server, and posting data to or deleting files from a Web server. ▮

Components Recurring Theme at VBITS Conference

BY CHRISTINA M. PURPI AND EDWARD J. CORREIA

NEW YORK — A recurring theme among exhibitors at this year's VBITS, the conference for Visual Basic developers organized by Fawcette Technical Publications, was component development and management for .NET applications.

Compuware Corp. unveiled tools for .NET; it will extend its support for XML, HTTP, SSL and SOAP technologies in its QACenter Performance Edition, which provides scalability for .NET applications. It also announced that it has teamed up with Microsoft Corp. to develop mobile solutions and will use the Mobile Information 2001 Server to deploy Microsoft Exchange Server and custom-developed applications to wireless devices.

Standing out from the component crowd was **AppForge Inc.**, which demonstrated its newly unveiled Visual Basic for Pocket PC, an add-on to Microsoft's Visual Basic 6.0 that permits developers to use the environment to target devices running the Pocket PC embedded operating system. Doug Benson, AppForge's vice president of marketing, explained that support for color and drop-down menus has been added. Developers can now use Visual C++ to create applications and ActiveX controls for Palm OS, Pocket PC and Win 32 devices using a single code base.

Benson warned that Visual Basic developers trying Microsoft's embedded version for the Pocket PC might be in for a surprise. "Embedded Visual Basic is not Visual Basic; a lot of the commands are different." Benson also noted that the AppForge environment permits developers to target devices running the Palm OS, with EPOCH, Linux, RIM and Symbian planned for the future. In addition, the company plans to add support for C++, C# and Java languages down the road. Visual Basic for Pocket PC is available now and sells for $899 per developer seat.

Another standout was **FMS Inc.**, which showed the latest beta of its Total SQL Analyzer for Microsoft SQL Server 7.0 and SQL Server 2000. The tool analyzes SQL applications and reports efficiency and possible bottlenecks. According to Dan Haught, vice president of product development at FMS, without an analysis tool, database developers are running blind. "If I have 30 people banging away at a server, I have no way of knowing what's going on," he said. Total SQL Analyzer, which sells for $399 per seat, also can display all tables and fields and performs consistency checks, he said, adding that database administrators also could benefit from its use. ▮

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QA-Systems Broadens Scope of Java Code Analysis Tool

QStudio Enterprise edition offers single point of entry for development teams

BY CHRISTINA M. PURPI

In an effort to help large development teams identify and correct poorly written Java code, QA-Systems International BV has released a version of its QStudio code inspection suite that provides a portal through which project members can access and inspect code at any point in the development life cycle, according to the company, providing reporting, trend analysis and coding standards conformance metrics.

"QStudio Java [Enterprise edition] looks for bad programming practices in the Java source code that might cause an application to crash," said Wim van de Brug, CEO of QA-Systems.

Among the features of the Enterprise edition is the ability to spot the weak points in the use of the Java programming. In addition, software engineering principles can be discovered in the early stages of development of any given application. QStudio is based upon pattern static analysis, which scans and analyzes problem areas in Java code, and is then put through 150 inspection rules in the QStudio analyzer, according to van de Brug.

QStudio is not just a Java verification tool, according to van de Brug. "It checks for all kinds of quality-related issues, such as reliability, testability and maintainability of an application written in the Java language," he said.

The Enterprise edition is Web-based and runs on Linux, Solaris and Windows and, according to van de Brug, is now integrated with Borland's JBuilder 3.5 and later.

The company also offers a QStudio Professional version, designed for individual programmers. It's designed to be a safety net and a learning and inspection tool that checks Java code, warns for errors and supports with knowledge and examples for improvement, van de Brug said.

"The developer can automatically check their Java code against a public, proprietary or company-specific Java coding standard," said Dirk Giesen, vice president of sales and marketing at QA-Systems. A third version, the Lite version, is free and available by download through QA-Systems' Web site (www.qa-systems.com) and contains a smaller subset of 25 rules and access to the full documentation; however, it is positioned only for evaluation purposes. QStudio Enterprise edition is priced at $2,000 and will be licensed on a subscription and a pay-for-use basis; the Professional version is available on a subscription basis for $395 per year, per developer. ▮

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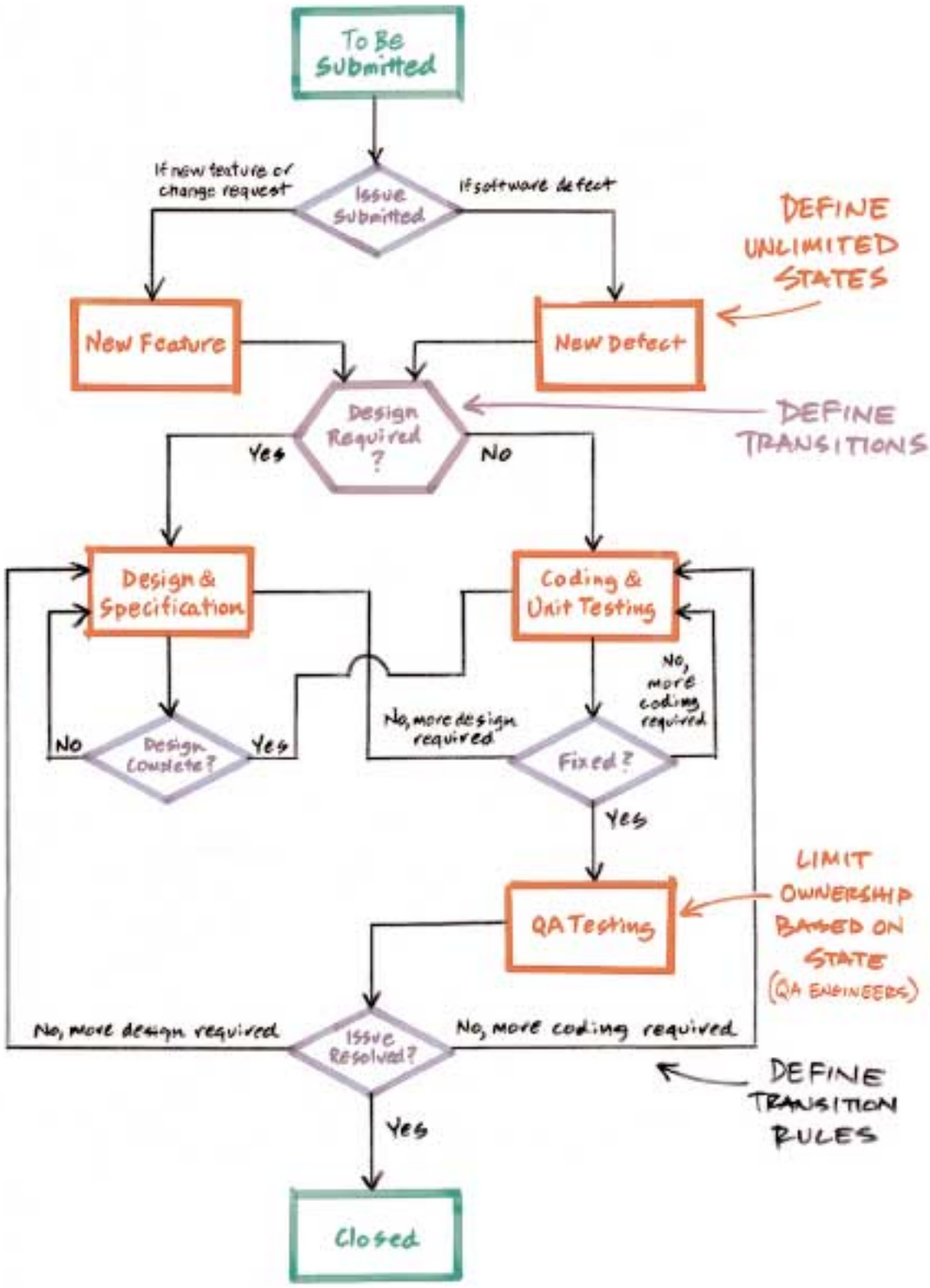

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Casting About for Java in the Application

Mining suite shows relationships between objects, databases

BY DOUGLAS FINLAY

QA managers and their developer members looking to peer into the source code interrelationships between Java and database objects will now get their chance with the introduction of version 4.0 of CAST's Application Mining Suite (AMS). AMS generates a visual schematic, or blueprint, which the company says helps managers and developers determine what impact any changes in code might have to the rest of an application.

Marc Jones, CAST's (www.castsoftware.com) vice president of North American operations, said, "Virtually all Java, from EJBs to servlets, to standalone Java applications and Java applets, and their relationships between Java code and database objects" are covered in the new release. As the Application Mining product covers most other languages, from Visual Basic to COBOL in distributed environments, Java code is only the latest of the major code bases to be added, he said.

"CAST provides exhaustive data about the interrelationships among objects and subobjects within a code base, and places them within a centralized location for viewing," Jones said, adding that AMS is supported in a variety of databases, such as those from Microsoft, Oracle and Sybase.

Jones said CAST 4.0 provides an automated analysis of different languages and recovery of their dependencies on one another to visually manage and explore code changes.

New to version 4.0, which costs $7,000 to $10,000 per developer seat, is an interface feature, called Functional Domain, that allows each function within the application to have its own schematic that reflects the components making up that function, said Mark Brooks, product manager. "Code bases have become more compartmentalized because of distribution over the Net," said Brooks, "but 4.0 sets up functional domains or views so developers can look only at code bases of specific importance to them, while still being able to search other code bases." Jones added that it focuses on information most important to the developer at that particular time, reducing the overwhelming complexity of code.

Another new feature lets developers look at both the beginning and the end of a process, and fill in the middle dependencies for the objects—everything from a table to an actual Web page.

Finally, the new version can filter out essential elements of other languages, valuable when determining relationships among objects written in different languages, said Brooks, and when the developer may not know the other languages used in the application.

AMS 4.0 is available immediately, and is free to users of previous AMS versions. ■

News Briefs

MORE PRODUCTS

◂ continued from page 5

wireless programs designed to communicate seamlessly with any standards-based application or network. It includes assembly-language optimizations for key processors, which are designed to allow developers to use RSA-based algorithms at fast speeds on wireless platforms from Symbian OS, Palm OS and Windows CE. An evaluation copy is available at www.rsasecurity.com/products/bsafe.

PEOPLE

John Parker has joined Kinetic Information LLC as a senior analyst of the E-Ring Circus Market Advisory Service. He will help track and analyze trends affecting content, knowledge and e-business products and services . . . Infrastructures for Information Inc. (i4i) has named **John Anhang** as its new CFO. Previously CFO at Changepoint Corp., he has expertise in mergers and acquisitions, and in developing high-growth companies.

STANDARDS

The Chemical Industry Data Exchange (CIDX) and the American Petroleum Industry Data Exchange (PIDX) are cooperating in the development and support of XML-based electronic business transaction standards within and between their industries. PIDX will initially explore adopting **Chem eStandards**, the body of XML-based standards jointly developed by some 60 chemical industry players over the past year . . . The National Committee for Information Technology Standards is convening a V3 subgroup meeting on July 26 and 27 in Washington, D.C., to attempt to further the work being done to standardize e-commerce transactions. Visit www.ncits.org/tc_home/v3.htm to learn about the scope of the meeting and the agenda. ■

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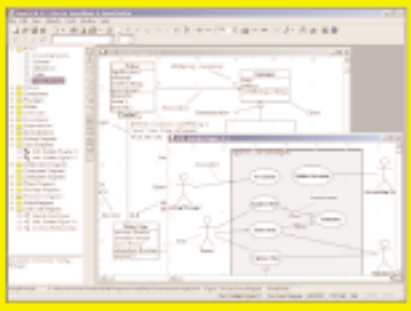

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Mac OS X

An Overview for Developers

With Mac OS X, Apple asserts its leadership in the advanced technologies and design sensibilities that are the hallmarks of any great operating system.

Mac OS X is a completely rebuilt implementation of the Macintosh operating system. It expands on Apple's technological strengths, such as industry-standard networking capabilities and industry-leading user interface design.

More importantly, Mac OS X combines those strengths with support for a variety of technologies beyond those typically associated with the Macintosh, such as UNIX and Java 2 Standard Edition. This unique combination of technologies offers developers stability, power, and interoperability, beneath a well-designed, elegant, and intuitive user interface. As a result, Mac OS X presents new opportunities for both development and deployment.

Darwin

The stability of Mac OS X begins with Darwin, the open source core of the system. Darwin integrates a number of technologies, including the Mach 3.0 kernel, operating system services based on BSD UNIX, high-performance networking facilities, and support for multiple integrated file systems. Further, Darwin's modular design lets developers dynamically load such things as device drivers, networking extensions, and new file systems.

> **Apple and Open Source**
> Apple is the first major computer company to make open source development a key part of its ongoing software strategy. The core of Mac OS X, Darwin, is itself an open source project. This approach to operating system development allows developers and students to view the Darwin source code, learn from it, and submit suggestions and modifications. Developers can participate in the Darwin open source project by signing up at **http://www.opensource.apple.com**.

Darwin's advanced memory protection and management system ensures reliability by allocating a unique address space for each application or process. The Mach kernel augments virtual memory semantics with the abstraction of memory objects. This enables Mac OS X to manage separate application environments simultaneously, while presenting users with a seamless experience.

Darwin also supplies the following advanced functionality:

- Preemptive and cooperative multitasking.
- Symmetric multiprocessing (SMP) augmented by support for multithreading.
- Real-time support guaranteeing low-latency access to processor resources for time-sensitive media applications.
- An object-oriented device driver programming framework called I/O Kit.

Graphics System

Mac OS X combines three powerful graphics technologies, Quartz, OpenGL and QuickTime, enabling developers to push graphics beyond anything users have seen on a desktop operating system.

Mac OS X system architecture

Quartz

Quartz is the foundation of the Mac OS X imaging model. It is comprised of a high-performance, lightweight window server and a graphics rendering library for two-dimensional (2D) shapes. The window server features such advanced capabilities as device-independent color and pixel depth, layered compositing, and buffered windows for the automatic repair of window damage.

The Quartz rendering model is based on the cross-platform Portable Document Format (PDF) standard, enabling developers to easily embed and manipulate PDF data within any Mac OS X application. This yields such benefits as automatic PDF generation and save-as-PDF, automatic onscreen preview of graphics, conversion of PDF data to printer raster data or PostScript, and a consistent feature set for all printers.

The layered compositing engine used by Quartz allows developers to create unique onscreen effects. It replaces the "switch model" of traditional windowing systems with a "video mixer" model in which every pixel on the screen can be shared among windows in real time. This model allows for smooth transitions between the states of the graphical user interface.

Quartz also provides developers with these advantages:

- On the fly anti-aliasing of graphics and text enabled by the use of a floating-point coordinate system and high-precision vector processing.
- Direct access to the video frame buffer.
- Automatic detection of and benefit from the floating-point coprocessing performed by the Velocity Engine in PowerPC G4 microprocessors.

OpenGL

For three-dimensional (3D) graphics, Mac OS X features an optimized implementation of industry-standard OpenGL. OpenGL is one of the most widely adopted graphics standards today, making code written to OpenGL extremely portable and making generated visual effects highly consistent. It is specifically designed for games, animation, CAD/CAM, medical imaging, and other applications that need a rich, robust framework for visualizing shapes in two and three dimensions.

QuickTime

Mac OS X comes packaged with the latest version of QuickTime, a powerful multimedia technology for manipulating, enhancing, and storing video, sound, animation, graphics, text, music, and even 360-degree virtual reality. It also allows streaming of either live or stored digital video. As a cross-platform technology, QuickTime can deliver content on Macintosh and Windows systems. Augmenting its cross-platform capabilities, QuickTime supports every major file format for images and every significant professional file format for video.

Through the QuickTime plug-in, QuickTime's digital video streaming capability is extended to all popular web

browsers. The plug-in supports over thirty different media types and makes it possible to view over 80 percent of all Internet media. QuickTime also features other advanced web streaming capabilities, such as movie "hot spots" and automatic web page launching.

User Interface

The most visible expression of Mac OS X power and technology is its new user interface, Aqua. Apple applies its leadership in user interface design to Aqua, incorporating many of the qualities and characteristics Macintosh users expect, while adding advancements to benefit expert and novice users alike. Ease of use is factored into every feature and capability.

Consistent with Apple's design philosophy, visual enhancements serve not just as beautiful images, but as cues to the functionality and operation of the system.

A prime example of this user-focused design is the use of "sheets." These non-modal dialog boxes attach directly to the title bar of the relevant document, intuitively linking document and action. The non-modal nature of sheets prevents applications from hijacking the system and interrupting user workflow.

Interoperability

Mac OS X makes unprecedented use of technologies and standards that allow interaction with other platforms. This affords both developers and users the opportunity to use Macintosh computers in new places and in new ways. Mac OS X manages multiple file and networking formats and supports a wide range of industry-standard protocols. Based on an enhanced VFS design, the file system supports multiple local formats and complies with POSIX file system semantics.

Hardware connectivity is simplified through built-in support for Ethernet (10/100/1000Base-T); serial connections for modems, ISDN, DSL; wireless networking through AirPort (IEEE 802.11); USB (Universal Serial Bus); and FireWire (IEEE 1394).

Java 2 Standard Edition

Mac OS X ships with a complete implementation of Java 2 Standard Edition (J2SE) version 1.3, including the HotSpot client virtual machine. Benefits of Apple's Java implementation include access to Aqua user interface elements "for free" through Swing, native preemptive multitasking, automatic multiprocessing support and management of JAR files as shared libraries.

This last advance improves the speed of execution and reduces the RAM footprint of applications which rely on the same archive, such as applications within suites. Mac OS X also plugs the Java windowing toolkit more directly into the Mac's native windowing toolkit, giving Java applications and applets the graphics performance benefits of Quartz.

Backward Compatibility

To afford users a gentle migration path, Mac OS X builds on Darwin's ability to manage multiple application environments simultaneously. The Classic environment is actually a full version of Mac OS 9.1 running in a protected memory space under Mac OS X. As a result, most Mac OS 9 compatible applications will run side-by-side with Mac OS X applications.

Additionally, developers can code for Carbon, a native Mac OS X environment that allows programmers to take advantage of advanced Mac OS X features while retaining compatibility with the installed base of Macintosh computers running Mac OS 8.1 and later.

Development Options

There are multiple ways to develop for Mac OS X. Individual skills, preferred languages and tools, target user base, and time to market concerns will influence a developer's approach:

Carbon

The Carbon APIs are based on earlier Mac OS APIs. While Carbon allows applications to take advantage of Mac OS X features such as multiprocessing support and the Aqua user interface, Carbon is specifically designed to allow compatibility with older versions of the Mac OS.

Cocoa

The Cocoa application environment runs natively under Mac OS X. For those who wish to develop for Mac OS X using rapid application development (RAD) tools and object-oriented techniques, the Cocoa frameworks provide a fast and complete way to do so. These frameworks offer both Java and Objective-C APIs.

Java

The Java application environment allows development and execution of Java programs on Mac OS X, including 100% Pure Java applications and applets. The J2SE implementation in Mac OS X is designed to allow maximum Java application portability. Developers can also use the Java development language to write a Cocoa application, allowing Java programmers to use a familiar language to develop for a new platform.

UNIX

Since Mac OS X is built atop a UNIX kernel, porting UNIX-based applications to the platform is relatively easy. This enables enterprise-level UNIX products to enjoy parity with consumer and business applications on a commercial desktop platform.

Mac OS X offers opportunities for developers from many different backgrounds to port and build innovative and compelling applications.

And the best way to get started is with the Apple Developer Connection:

Apple Developer Connection membership programs offer benefits such as prerelease software seeding, code-level technical support, news and technology updates, and discounts on business support services. Developer documentation and resources are available free at **http://www.apple.com/developer**.

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SoftWire 3.0 Gets Visual Debugger

Extension for Visual Basic can now gather real-time data from Web

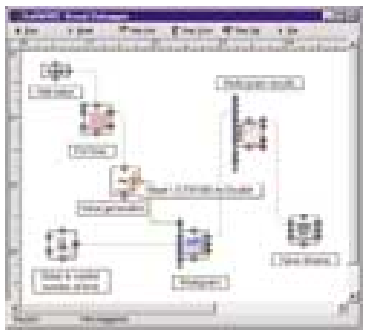
BY EDWARD J. CORREIA

SoftWire Technology Inc. has released SoftWire 3.0, an update to its graphical programming extension for Microsoft's Visual Basic 6.0 that adds a visual debugger and more than 30 new features, the company said. SoftWire claims that its tool permits nontechnical people to build complete applications without writing a single line of code.

Among the new features is the ability to create ActiveX DLLs, which, according to the company, permit developers to build, store and reuse programming functions in a library, and to build hierarchical programming structures. The tools also now feature a new data access suite that includes predeveloped controls for transaction processing, shaped recordsets and record filtering.

Also included are Web browser and scraper controls that the company said permit developers to build applications to gather data from the Internet such as stock prices and airline fares for real-time display. Also new is an automated histogram control that displays dynamic histograms in real time.

SoftWire 3.0 (www.softwiretechnology.com) is available now for $495 per developer seat or $199 for an upgrade from previous versions. Applications created using the tool may be distributed without royalties. ■



SoftWire 3.0's new visual debugger highlights code errors for quick fixes.

IBM GOES EVERYPLACE WITH WEBSPHERE

BY EDWARD J. CORREIA

You've heard of Sybase Inc.'s iAnywhere? It will soon have a new competitor. IBM Corp. is about to release WebSphere Everyplace Server, a server application that the company says can extend enterprise applications to wireless devices without the need for a separate server to handle user authentication and session management.

According to IBM, the software for AIX, Solaris and Windows 2000 can transform content for screen size, graphics and storage for devices running EPOC, i-mode, Palm OS, Pocket PC and QNX operating systems. It also handles message queuing for transaction integrity, and provides load balancing, fault tolerance and caching. IBM also will offer optional gateways for WAP, GPRS and short messaging, and synchronization for adding offline capabilities to clients. WebSphere Everyplace Server is scheduled for release in July, and per-processor pricing has not been finalized, the company said. ■

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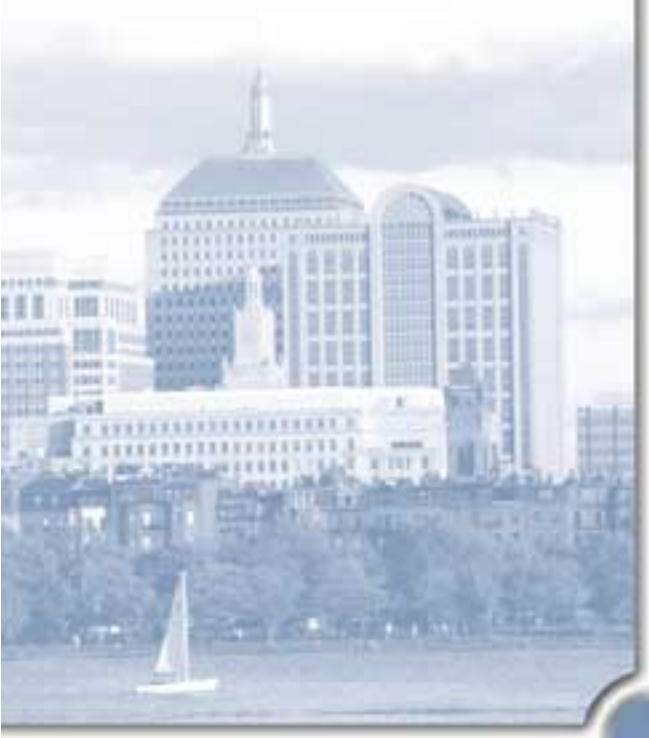

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specifically Java technology."

Green said that having J2ME in silicon will open new doors for Java developers. "It's a wide-open developer opportunity because the chip becomes a general-purpose computing platform for a variety of applications ranging from entertainment to data access to financial," he said, calling J2ME-equipped devices "general-purpose personal computers with a smaller display and bandwidth." Terms of the agreement call for ARM to provide a MIDP-compliant Java stack, and to ensure that the ARM chips deliver "maximum performance of Java in a certified fashion," he added.

Though it was unclear exactly how the two companies would collaborate in the future, Reynette Au, ARM's general manager, said the collaboration would focus around the embedded market, "particularly the wireless handheld space [where] we find a need for Java technology," which she said is proving to be a "key enabling technology for high-end applications where there is an interactive experience for end users." ARM processors are pervasive in portable communications, handheld computers and other consumer electronics, as well as embedded designs.

Embedding an optimized JVM in hardware, said Green, holds much greater potential than merely enabling Java with software. "We're talking about the ability to optimize the execution of the platform not for a 5 or 10 percent performance boost, but for a many-fold performance increase," of as much as 10 times, he said. "The availability of Java on the platform allows you to run a variety of apps that can be downloaded over the air that add new services and features to the device," he said, adding that local applications use bandwidth more efficiently, unlike Web or WAP technology, which must constantly refresh.

ARM is certainly not the first company to incorporate Java in silicon, but according to Green, ARM's market clout makes the difference. "If ARM was a small startup about to ship their first chip to an unknown set of partners, this might be just an interesting announcement. Through this partnership, an enormous share of the wireless planet will now have access to fully compliant accelerated Java." ▮

Lineo StrongARMs Embedded Linux

BY EDWARD J. CORREIA

Embedded Linux developer Lineo Inc. has joined forces with board maker Applied Data Systems Inc. to provide a development platform based on Lineo's Embedix Plus and Applied's Graphics Client Plus StrongARM SA-1110-based single-board computer.

Also the result of collaborative efforts by Lineo, Embedix Plus combines Lineo's brand of embedded Linux with Insignia's Jeode JVM, Trolltech's Qt/Embedded GUI controls and the Opera 5 Web browser from Opera Software. The alliance was first unveiled at JavaOne in June. Now Lineo (www.lineo.com) has integrated the suite with Applied's SBC to create an all-inclusive development system.

According to Applied, the 4 x 6-inch system already is in use in dozens of designs, including vehicle computers, Web tablets and automation systems. The board includes a touch-sensitive LCD and a multitude of interfaces. The system is scheduled for release in September; pricing has not been finalized. ▮

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Wireless: More Than A Cable-Free Environment

Businesses face complex issues when developing for a mobile work force

BY EDWARD J. CORREIA

For most businesses, equipping a mobile work force with access to enterprise data will soon be as necessary as having a corporate Web site. But how to go about it is not so cut and dried. Which applications and data are mission critical? Which users need access and on what types of devices? Should access be real-time or is synchronization good enough? And should your company build in-house or should you dump the whole problem on an outside contractor?

One of the first things to think about when deciding how to mobilize, according to Marty Mallick, wireless solutions evangelist at Sybase subsidiary iAnywhere Solutions (www.sybase.com/solutions/mobilewireless), is the type of devices to be used and network that will be accessing the data. "One of the challenges we found was speed and cost of the networks. What is the bandwidth that you're going to have and how much data will be transferred? You also have to think about the coverage you're going to have in a given area."

A major challenge for developers, Mallick continued, is the diversity of client types. "There's such a huge number of different devices, microbrowsers and markup languages out there. The complexity of developing these applications is quite a bit greater than developing a standard desktop application."

Warren Wilson, a wireless analyst with Summit Strategies, agrees. "You have x number of applications running on a variety of operating systems going across a variety of networks to a multiplicity of devices. If you have to hand-code each application to reach each device, that winds up looking like a pretty complex matrix."

Although wireless developers have been saddled with difficulties for years, Wilson said that is starting to change. "There's a lot of effort being put toward tools that simplify wireless application enablement that allow you to reuse components or finished solutions."

One example is ThinAirApps Inc. (www.thinairapps.com), which specializes in simplifying wireless development through a series of wireless server middleware products. "One of the biggest problems that the enterprise faced is the learning curve building wireless applications," said product manager Evan Simeone, who claims that his company's newest product, Identicon DB, makes building wireless database applications for Palm OS no more complex than building desktop apps.

Although ThinAirApps' products are technically considered middleware, Simeone said there are subtle distinctions. "Middleware usually means integrating back-end systems with each other. We are bringing server-side components and APIs to the devices to make the distance between the device and the database disappear." Simeone said that the alternative is pretty complex stuff. "If you wanted to write a database application on the device that accesses Oracle or DB2, you'd have to write your applications and networking stuff in C. You'd have to write the server code to handle those requests from the device, package up the responses and send them back, not to mention handling sessions and user authentication," all of which is done by ThinAirApps' all-Java server component.

Simeone said that Identicon DB also can be used for building mobile access clients for off-the-shelf databases such as those in customer-relationship management and sales-force-automation applications, but he warned that such integration is not for the do-it-yourselfer. "Every company has a wildly different implementation than another. And because CRM and SFA are so different, you can never have a 100 percent

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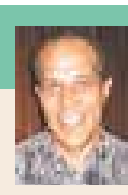
WHAT TO LOOK FOR IN AN EMBEDDED JVM

Jim Acquaviva, CEO Kada Systems Inc.



When mobilizing enterprise applications, Java opponents are likely to argue that large footprint and slow performance make embedded Java unsuitable for resource-constrained devices. But that argument is getting harder to make as Java developers continue to advance.

One such developer is Kada Systems Inc., which recently released the Kada VM, a clean-room Java Virtual Machine and APIs for Palm OS and PocketPC based on Sun's Personal Java specification.

SD Times: What are the main obstacles to building mobile enterprise applications?

Jim Acquaviva: Focusing on Java for a minute, I think the main obstacle until recently has been the skill set. Java developers did not have the ability to use their favorite IDEs to build database applications, and they didn't have effective vehicles for dealing with wireless connectivity to the enterprise.

Have there been other Java-specific problems?

Those that haven't adopted Java will have one and only one objection: that Java as an interpreted environment has more hooks for I/O, and therefore less speed.

How can developers overcome the interpreted performance issue?

We do it two ways: with an adaptive just-in-time compiler that preanalyzes the most commonly used routines and precompiles them, and with our ahead-of-time compiler, which allows developers to go through their applications and precompile and preinstall native methods as part of the application.

Doesn't compiling ahead of time create other problems?

The one disadvantage some have associated with ahead-of-time compilers is the code load that comes along with it, which can be as much as 10- to 15-times normal.

What else should developers look for when choosing an embedded JVM?

Bringing Java to the environment is one thing, crafting it properly to fit in is another. What we've worked on is putting Java in very small places, about 155KB, and still [having it] support full functionality that enables developers to tune their applications for the device profile. This is valuable in markets where they are evaluating what they can and can't do.

What are some of the things they still can't do?

If you're going to build an application that's totally dependent on a wireless connection, you have a single point of failure that renders that application unsuitable for mission-critical performance. With a combination of a JVM and synchronization with a local database, organizations can build applications that service customers, process orders and take inventory that can run wirelessly when they have a connection and locally when they don't.

What's the next big step for mobile-Java developers?

The next level is integration with Java Message Service, to build applications that cooperate with message-oriented beans in a J2EE architecture. That's an important architecture for enterprise integration because you can reuse your investment in your J2EE app server- and browser-based applications that serve up information through JMS to mobile devices. That's just starting to come out.

–Edward J. Correia

WIRELESS

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solution out of the box. So we package together services with this technology," he said, adding that for those sorts of packaged application integration, most enterprises outsource anyway.

Collective Communications Corp. (www.collective.com) offers a similar solution with an interesting twist. The company provides all the developer tools and server components for free, and even provisions the wireless network connections for no up-front change. Instead it charges an all-inclusive monthly usage fee.

Also unlike the ThinAirApps solution, Collective specializes in mobilizing packaged applications. According to David Feldman, Collective's vice president of marketing, the Collective environment consists of a dedicated, encrypted server sitting between enterprise applications and their mobile users. "The application resides in two places, with most of the heavy processing done at the server level, and most of the GUI and interface done at the client level," he said.

Feldman claimed that the significant advantages of the Collective system are lower cost and reduced risk. "We will give you all of the applications for free and like a cell-phone contract, you sign up for a one-year subscription on a per-user basis, and for either a limited or unlimited number of transactions. You can start with a single user," which reduces risk, he said. Collective provisions the wireless ISP service; the customer provides a Java-enabled server.

Collective gives you all the tools for free, says Feldman.

The downside to the Collective method is that each application requires custom Java code for the server, and C code for each client device, a process that Feldman said can take as long as several months. To help speed the process, Collective includes suites of common applications such as CRM, database, e-mail, faxing and printing. He said that thanks to some of these predeveloped components, setting up a simple inventory query system can be done in minutes.

Feldman said the company is examining an all-Java client solution but for now is accentuating the positive. Using native code on the client, he said, lets developers tailor the layout of interface elements for each handheld device, and permits them to tap into the device's existing applications. "We can use cut, copy and paste and tie into the Palm native applications and use those as working tools," he said.

THE STRAIN OF WIRELESS

"If you've got high-security needs and a capable IT department, then in-house deployment of a packaged product makes a lot of sense," said Summit's Wilson. But regardless of how easy a vendor claims its tools are to use, some companies are simply not equipped to handle the resource drain associated with wireless deployment, which can be significant.

For those companies, and for certain applications, a hosted solution might be the best fit. Packaged Ice Company Inc., which claims to be the world's largest manufacturer and wholesaler of bagged ice, has tried it both ways. Michael Busch, senior vice president of operations at Packaged Ice, said the benefits of outsourcing have been tremendous.

The company's in-store bag-

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WIRELESS

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ging division leases to customers a proprietary machine for making and bagging ice at the point of sale. In order to help reduce the gigantic work force required to manually maintain its 2,000 deployed machines, the company designed a system that used land-based phone lines to remotely monitor ice production and inventory status.

That system took about two years to build, Busch said, and was costly and unreliable. With the hope that a hosted solution might reduce costs, Packaged Ice contacted Isochron Data Corp. (www.isochron.com), which develops and markets wireless communications systems for monitoring remote equipment and hosts the resulting data.

Busch said that in roughly five months, Isochron had developed and deployed a solution to the company's 2,000 machines, resulting in a drop in per-month maintenance costs from $60 per machine to about $10. Busch also said that an increase in production efficiency of about 10 percent resulted in a $270 million increase in annual revenue in the first year.

Being stationary devices, ice machines are therefore less susceptible to loss of wireless coverage. Not so with handheld computers, said Summit's Wilson. "It's easy to imagine a situation where you're in a tunnel or in a pocket where you're out of coverage," which builds a case for synchronization. "If you're totally real-time, it's a challenge to transmit data without some interruption that fouls it up," he said, adding that it's "important to have data and business logic on the device to make the device useful even when you are out of coverage."

But Collective's Feldman is not in favor of synchronization, and said that local data invites security leaks where his real-time solution does not. "If a salesperson is fired or loses their device, all their information is secure on the server. We think there's a lot of value in real-time data," particularly with scheduling and inventory applications.

Stressing the importance of always-available data was iAnywhere's Mallick. "It gives them an application that doesn't rely on wireless coverage for interaction. All of the transactions take place locally on the device," said Mallick. Changes to data can be synchronized with enterprise data when the network is available.

And according to Wilson, synchronization also helps conserve battery life. "The data will reside on the device; I don't have to retrieve that data from the back end, which takes time, money and uses up device battery power. That also sets up a model where you might sync large amounts of data via cable every night, and during the day use the wireless connection for small updates," he said.

But Wilson said that the best solution combines real-time with synchronization. "Wireless networks are getting stronger and more reliable, but they'll never be as reliable as wired networks. Of course you want to be aware of always-on capabilities for applications like alerting, but there are many situations today and into the future where having information and logic stored on the device makes a lot of sense," he said. "Fundamentally, customers should want to solve business problems. But there's a tendency to get caught up in the form factor debate, or the protocol debate, and in a lot of things that are separate from solving business problems." ▮

Jane needs a wireless app!

AireLogic IDE

AireLogic is a Windows-based IDE that gives a developer the ability to create wireless applications in a minimal amount of time without the need of intensive programming knowledge. With AireLogic's easy-to-use, flowchart-style interface, a developer can easily create an application's logic, bind the database connectivity and automatically generate server-side code in ASP, JAVA or PERL. AireLogic fully supports connectivity with any data source, such as SQL Server, Oracle, DB2 and XML.

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EDITORIAL

Is Microsoft's Vision Enough?

Not only does Microsoft have a clear vision for Web services, but there's little doubt that the company is further along the road to delivering Web services-enabled platforms and tools than anyone else. At the recent Tech-Ed conference in Atlanta, Microsoft delivered the second betas of its .NET Framework and Visual Studio.NET development suite. Using those pre-release tools and platforms, its customers can build and deploy Web services—at least, software that conforms to Microsoft's vision of Web services—today. Conveniently, Microsoft has relaxed its license provisions, which normally ban the deployment of production code using its beta products, so that it can quickly claim an established base.

By comparison, the Java community is in disarray. Sure, one can build and deploy Web services using J2EE, but only by taking advantage of vendor-specific third-party extensions to the Java specification. The first version of Java 2 Enterprise Edition that will include built-in support for Web services, based on SOAP, XML and WSDL, will be J2EE 1.4, expected in late 2002 or early 2003.

Microsoft's head start may not matter. Despite the push from Microsoft—and to a lesser extent from platform vendors like IBM and Sun and tools vendors like Borland—we don't see developers flocking to Web services. The concept is too new, the benefits theoretical, and interoperability unproven. Remember the joys of deploying HTML code when, despite the standard, Microsoft's Internet Explorer and Netscape's Navigator rendered Web pages differently? Imagine how much worse testing and debugging cross-platform first-generation Web services might be, particularly when factoring in the proliferation of XML schemas. It's not a pretty picture.

Savvy enterprises won't deploy Web services using beta .NET or Java code—or perhaps even using version 1.0 of the tools and products. Except for 100% Pure Microsoft shops, or those using Web services internally or to solve a specific extranet problem where compatibility isn't an issue, the risks of incompatibility will be huge. In this case, being a first mover or a visionary won't be sufficient. Expect a long ramp-up as developers experiment, vendors refine their tools and platforms, CIOs fret about security, and CEOs grapple with building a business case for exposing their applications as services.

Microsoft deserves full credit for having a compelling vision for Web services, for instigating several of the underlying protocols and for getting products into developers' hands before anyone else—that's the natural advantage of Bill Gates' practice of making unilateral decisions, rather than relying upon industry input through a "community process" or on decisions from standards bodies like the W3C. Does that mean that it's "Game Over" for Java? Of course not. Redmond has won the first round, but at this point, it's only an exhibition game. The real battle for Web services won't begin until all the teams take the field—and until the fans demonstrate that they're willing to shell out for season tickets. ▮

GUEST VIEW

COMPATIBILITY AND EMBEDDED JAVA TECHNOLOGY

Our gut feeling seems to tell us "compatible is good" and "incompatible is bad." With that in mind, what does it really take to run Java applications in this pervasive world? That's pervasive as in embedded devices communicating through Internet links to automated services.

Building things that link and think presents developers with a wide range of choices in processor architectures and operating platforms. If you're ever to hope for code reuse and broad device compatibility, you'll need the uniform execution environment that can be delivered only through virtual machine technology. You get to focus on functionally implementing your solution, and not on constant work porting to target after target. Well, that's the idea, anyway.

MARC ERICKSON

Like it or not, all those different devices will expose different execution environments to the virtual machine. Timing is different on faster processors. Real-time operating systems and process and thread management exhibit different behaviors. Power consumption will vary. Attached devices may have quite different implementations. Some of these issues will be dealt with by the virtual machine, and others will result in things that must still be compensated for within the application. Write once, and run anywhere after analysis and revision is the reality.

To achieve Java compatibility, the virtual machine and libraries must respond to an application's Java API calls correctly, and the results must match those demonstrated by the reference implementation defined by the Java Community Process. The JCP's Java Specification Request teams provide specifications, reference implementations and test suites for every standard they define. The JSR teams also define Java-compatible products as those that run the test suite in the same way as the reference implementation. Historically, it's been interesting to see some variance between the specification and reference implementation behavior. In practical terms, to become Java compatible you match the behavior of the reference platform, not the formal specification.

That means that if you're building a device that must run Java applications, you need to provide a predictable environment so that application developers get the results they expect. When designing such a platform, Java compatibility is one of the qualities that will probably make or break your product in the marketplace. The other qualities like speed, power consumption, capacity and extendibility matter only if the device works right in the first place. Working right means that it properly executes every Java application sent its way.

Achieving compatibility means that you must pay the price of supporting components that may never be needed. That cost includes memory footprint, power utilization and processing inefficiency. Platform configurations and industry-oriented profiles are now being defined by the JCP. As they are finalized and the references and test suites become available, you'll be able to get Java-compatible products from a variety of vendors.

But many of the embedded devices now being designed are not general-purpose program execution platforms. In fact, many are closed and rather specialized. Think about appliance controllers, factory floor automation nodes, special purpose test devices, or vehicle navigation systems. Where the product engineer has complete control of a device and its software, and random Java applications are unwelcome (or even excluded), it doesn't make sense to pay the extra price of all those extra library classes and methods that go unused. When constructing a closed or specialized device, it's only necessary to provide an environment that executes the included Java applications properly. This has little to do with the marketing term "Java compatible."

As your project proceeds, you may find that the cost of a fully Java-compatible platform is not warranted. You'll certainly want to use a virtual machine and libraries that correctly run the Java applications you've written. Any responsible vendor will ensure that, or give you your money back. What's much more important is that you, as a responsible engineer, investigate what's needed and make your choice based on the quality of the implementation.

Since some of your projects may include constructing general-purpose Java platforms, and others will be more closed-execution environments, look for vendors that offer you that choice. When you need "Java compatible," shop for qualities like price, speed, compact size, support, target platform compatibility (CPU and RTOS), tool availability and support for more compact specialized deployment from the same source. That way, you get the best of both worlds.

So my best advice is that, as with all things technical, it pays to hear the marketing messages, but then to find out the details for yourself. ▮

Marc Erickson is a product manager with IBM's Object Technology International subsidiary. Reach him at mre@us.ibm.com.

LETTERS TO THE EDITOR

WEBSPHERE IS "OLD"

Quick question for you regarding Andrew Binstock's Middleware Watch column ["Tomcat Struts, iPlanet Naps," June 15, page 37]…How do you define IBM's WebSphere as "aging technology?" What criteria drives this choice?

William G. C. (Bill) Buckingham
Technology Architecture
Royal Bank Financial Group

Andrew Binstock replies: "Aging" is perhaps not as accurate as "old." WebSphere 3.5.*x* lags significantly behind other Java app servers in its support for current specifications. The most egregious aspect is that WebSphere 3.5 is not J2EE certified. In addition, its support for EJBs is one full generation behind what BEA's WebLogic has provided for months, for example. There are numerous other outdated aspects. Features announced in version 4.0 will address some of these issues. However, until customers

BRIDGING THE VIRTUAL CHASM

Anyone who has worked as part of a distributed team knows that it's a tricky proposition. Anyone who has attempted to manage a virtual team, where the members are not only physically distributed but actually report to different departments or work for different companies, knows that it's impossible.

BOOK WATCH

ALAN ZEICHICK

That's an exaggeration, of course—many virtual teams can and do work efficiently, whether the team members are all part of the same organization, or they consist of competitive organizations coming together as peers, or if there is a customer-contractor relationship.

Making the project succeed requires a delicate balancing act between formality and informality, between hard-and-fast requirements and squishier team-building leadership. Not to mention that the tools, experience and end-goal expectations must be compatible.

Enter "Virtual Project Management," one of the most fascinating books I've read for some time. The author, Paul E. McMahon, has not only cogent observations and recommendations, but also a storytelling writing style that makes this information-packed book deceptively easy to skim. It is tempting to read quickly—but slow down. The solutions that McMahon offers are often quite subtle, and are deserving of careful contemplation.

If you're expecting those solutions to be technological, which I was, you'll be disappointed. The book's subtitle, "Software Solutions for Today and the Future," is a misnomer—this isn't a book about Notes, Exchange, CollabNet or StarTeam. Although McMahon does provide some guidance, at the very end, for using communications technology to tie teams together, that content constitutes the smallest part of the book. Instead of software, McMahon focuses on wetware, the interaction of people's brains and personalities, helping the reader understand the interpersonal dynamics that affect virtual teams, while project members balance competitive pressures, personal threats, differences in corporate culture and so on. He writes largely about overcoming the natural friction that occurs when people are forced to work together but have never had an opportunity to really get to know and trust each other as individuals and professionals—and what you can do about it.

As most developers know, you learn more by analyzing failure than you do by analyzing success. So, McMahon begins the book by discussing the four reasons he says distributed collaborative ventures fail: cultural incompatibility, leadership struggles, lack of trust, and inbred notions of competition. A big factor, which the book describes with detailed examples, is how the most effective communication within teams and organizations occurs not formally, in memos and meetings, but informally, around the proverbial water cooler or from individuals interjecting comments heard floating above cubical walls. The fact that members of different organizations don't know the unwritten rules of each other's business processes, and can't plug into each other's informal communications networks, sets up a situation ripe for failure.

It's not just on the organizational level, of course. How do you know something's wrong with a key person's work? By her expression, or the fact that he's being unusually quiet during lunch? This book helps managers understand the value of nonverbal communication, and offers suggestions on how to compensate for a lack of it when participants are geographically diverse or when they don't know each other. Worse, mismatches in corporate cultures, organization charts, bureaucracies and visions of a project's purpose can result in misinterpretation of apparently straightforward messages—and nobody notices until there's a crisis.

In part of the book, McMahon punctures some of the management-imposed organizational structures that Scott Adams' "Dilbert" lampoons so successfully. Take tiger teams, which are small temporary working groups set up to solve a problem on a tight schedule by working around the clock. The problem, says McMahon, is that in a large collaborative partnership among multiple companies or departments, many tiger teams are created and populated by just one organization's employees, often with the goal of short-circuiting the collaborative process because that organization believes it to be too slow. Sure, the tiger team can get the job done—but to only that one group's satisfaction. The exhaustion of the tiger team members, plus the time it takes to resynchronize the results across the larger collaborative team and rebuild trust, can actually result in a net loss of productivity.

McMahon discusses many of the other danger signs, and can help managers and project members see the verbal and nonverbal warning signs when something's going wrong with the collaboration. But even better, he has a solid suggestion for building the project's communications infrastructure to minimize such problems. His "component-product development matrix," or CPDM, describes what the project is supposed to build; the "rapid filtered project memory," or RFPM, provides a framework for communicating informal information that's not documented in corporate procedure manuals or handbooks, but which is necessary for a project to succeed. A good part of the book is dedicated to establishing a procedure for creating a sharable RFPM, and for documenting the CPDM, in a way in which all team members can benefit and which doesn't put a company's proprietary information or processes at risk of disclosure.

Although McMahon's processes seem formal and buzzword-laden, he makes a lot of sense. The issues he addresses in "Virtual Project Management" are real and indeed waste a lot of time, money and resources. Before you start a new interorganizational task force, give this book a read. It might make the difference between spectacular success and abject failure. ■

"Virtual Project Management: Software Solutions for Today and the Future," Paul E. McMahon. St. Lucie Press, 2001. Hardcover, 319 pages, $54.95

Alan Zeichick is editor-in-chief of SD Times.

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install and run 4.0, we won't have any idea of the quality of implementation.

JMS: THE BEST OF J2EE

Regarding the article ["Three Faces of JMS," June 15, page 8)] I have to say the following: I am a software engineer in the automotive industry in Germany. Our company is a worldwide leader in delivering interior parts. As we started developing a Web application for our just-in-time delivery system, we chose Java and WebSphere as the platform.

The software supports the production and shipping process in a plant. Since we use scanners to communicate with the system, we wanted to invoke actions on events that occur mostly from scanners, or other triggers. When I was creating the concepts, I chose JMS because it was the only technology that is able to work asynchronously with events. RMI and the event class from AWT do not support asynchronous communication.

The idea was that any event that occurs is simply a JMS message that arrives in a queue, and an action handler (which can be a thread or a message bean) invokes actions triggered by events.

Unfortunately, our department canceled Java as the development language. So we have to use Progress now to implement the system. One of the first reasons for this bad decision was the costly app server and database licenses. I am really sad about this strategy, because I am a Java fan.

JMS is one of the best technologies in J2EE to support asynchronous messaging. I think the producing industry may use it for hardware interfaces and communication aspects as the best choice.

Uwe Wortmann
Johnson Controls GmbH
Automotive Systems Group

SD Times welcomes feedback. Letters must include the writer's name, company affiliation and contact information. Letters become the property of BZ Media and may be edited for space and style. Send your thoughts to letters@bzmedia.com, or fax to 516-922-1822. Please mark all correspondence as Letters to the Editor.

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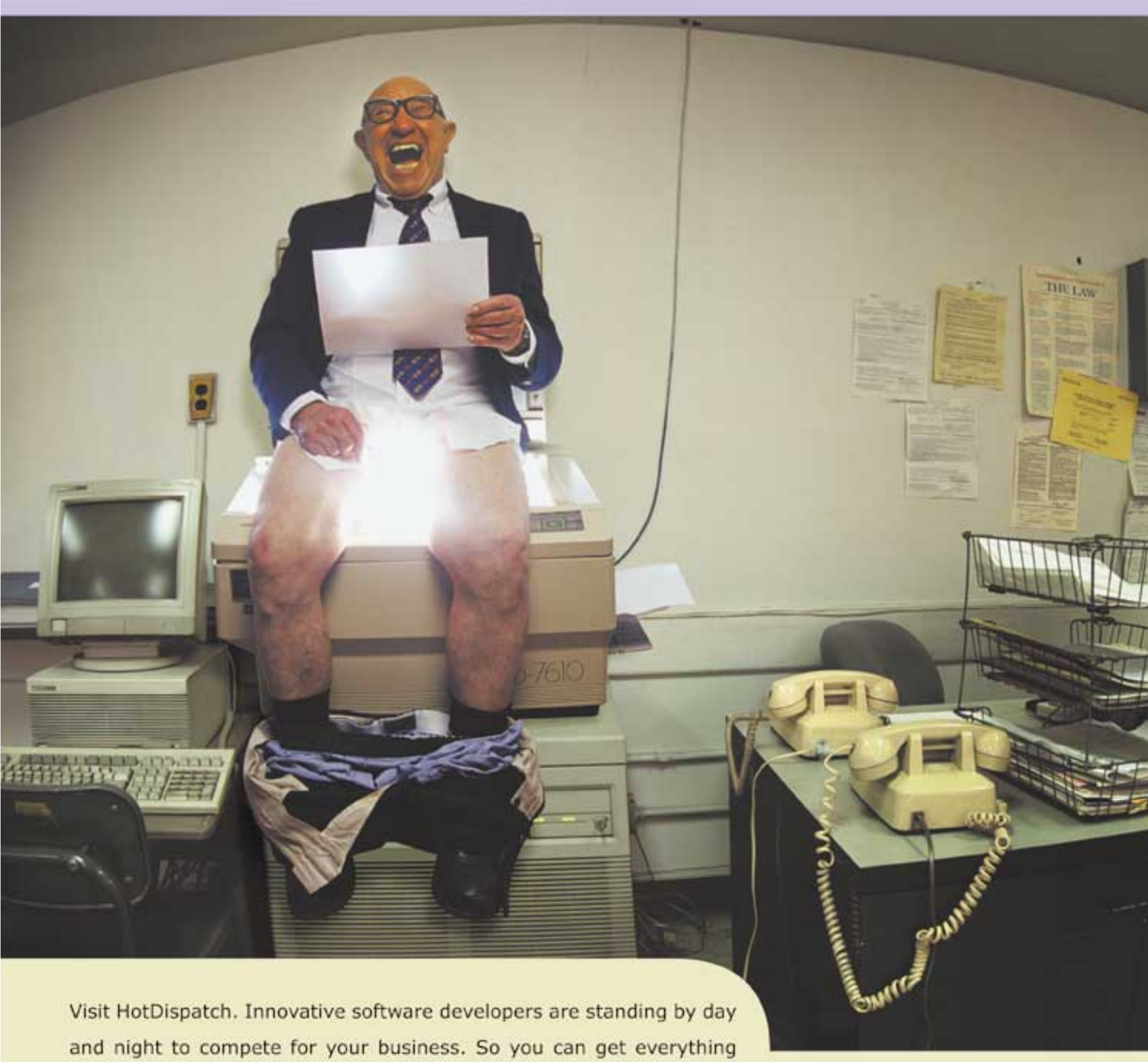

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ISA CAN'T BE A TYPICAL MICROSOFT PRODUCT

With the release of the .NET version of BackOffice, Microsoft is obviously hoping to turn Windows 2000 into an application-serving platform that will give developers all the services they need to build enterprise-class Web applications. The key word there, of course, is *hoping*.

A biggie amongst the new .NET server packages is the Internet Security and Applications (ISA) Server. This is the next generation of Proxy Server, enhanced so that it can take the place of a third-party firewall in a Web application architecture. It also has the distinction of being the first product to come out of Redmond that's dedicated to security.

Microsoft's release of a dedicated security server makes perfect sense, and indeed this columnist has been one of many who have questioned why Redmond hasn't done so sooner—especially considering the vast number of security-related problems attributed to Microsoft's Windows and Outlook software during the years. Not to mention that as far as security is concerned, there's gold in them thar hills—and when has Microsoft ever turned its back on a new revenue-stream opportunity?

Even from a merely practical perspective, one would imagine that nobody would be better than Microsoft at building software dedicated to protecting its own operating system. The company made a splash at the Networld+Interop conference this spring when it submitted its Microsoft Operations Manager 2000 product for the Best of Show awards. MOM 2000 didn't win, but it sure garnered some attention as it basically leverages Microsoft's deep knowledge base about its own operating platforms into a salable product aimed at helping Windows 2000 network managers. Why not do the same thing for security? Should be easy, right?

WINDOWS WATCH

OLIVER RIST

Too bad that the folks on the ISA Server product team didn't take this approach. Instead, they've built what amounts to a typical Microsoft-style first cut at a usable security product, which amounts to a decent enough platform for small or medium-sized businesses but really doesn't cut the mustard for enterprise-class development efforts. This became quickly apparent when only a few weeks after ISA was released, the industry discovered that the server was vulnerable to Denial of Service attacks that would effectively render it useless. Redmond responded quickly with a fix only to run into an unusual problem for a security company: Some folks refused to install the fix.

After literally years of releasing buggy software only to provide lengthy strings of patch fixes, usually of varying quality in their own right, I guess Microsoft just assumed this approach would work for security. *Open advice to Redmond: Try again.* Even from the standpoint of product management, this approach could never work. Imagine building a software product or service using Microsoft tools, and then selling it to customers while employing a security solution that not only has an unknown number of holes, but will need to be bolstered by an unknown number of patch upgrades, each with its own unknown number of holes and bugs. Nobody could ever sell such a product with any degree of confidence.

Security doesn't just protect Web customers from hackers looking to steal passwords or credit cards. At its core, a security solution in an e-business is there to protect the company from liability. Something that should still be close to Microsoft's heart. As such, this solution cannot be crippled by an unstable core. It needs to be rock-solid right from the get-go. Frankly, given Microsoft's perception in the market, they should have been working twice as hard to achieve such a perception as anyone else, so I was more than a little surprised to see ISA released with such little fanfare. Where were the loud testimonials and the challenge to the hacking community to test the product beyond the shadow of a doubt?

If ISA follows the typical Microsoft product life cycle—and so far it is—its first version will be adopted mainly by small businesses that can live with its shortcomings. Larger customers will evaluate it but stick with third-party platforms with the appropriate feature muscle. By version 2.0 or even 2.5, ISA will have plugged up enough feature and reliability holes so that some enterprise-class customers will feel comfortable with it.

But unlike many other server-class products, that kind of time line will seriously hurt ISA adoption, I think. A security architecture that works is not an e-business element with which you want to play around. If Microsoft customers start using parts of .NET to build applications while relying on third-party vendors to provide select core components like security, Microsoft is going to have an extremely tough time converting these customers later on. ▮

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WHO NEEDS FREE SOFTWARE ANYWAY?

Cancer. That's the word Microsoft CEO Steve Ballmer used to describe Linux in a recent interview with the Chicago Sun-Times. "Linux is a cancer," Ballmer said, "that attaches itself in an intellectual property sense to everything it touches."

Ballmer didn't say Linux is *like* cancer. He said it *is* a cancer. Toxic. Deadly. Contrary to life and health. And—he didn't say this, but it is too deliciously true to go unsaid—growing out of control.

What Ballmer meant by "in an intellectual property sense" is that the GNU Public License—the GPL, under which Linux and many other open-source applications are distributed—imposes a burden on users of the software. If they incorporate GPL code in their projects, then they must include their enhancements to that code, free of charge, when they distribute the project outside their own companies. If the software is used only internally, there is no requirement to donate enhancements and extensions to the public at large. Which is one reason GPL software is viewed as a threat by Microsoft and a boon by thousands of corporations.

For more information on the GPL and its restrictions, check the source document at the GNU Web site: www.gnu.org/copyleft/gpl.html. Note that the main covenants of the GPL have never been tested in court; their validity therefore remains open to question. However, Microsoft's Ballmer apparently believes them enforceable enough to constitute a cancer on the software industry, and on all other industries that rely upon intellectual property law. So there you are.

OPEN SOURCE

J.D. HILDEBRAND

The GPL is not the only license governing open-source software. Indeed, the GPL is properly termed a *free* software license, not an *open-source* license. Many alternative licenses exist, including the X Window License, the Jabber License, the Apache License, the Python License, the IBM Public License, the Qt Public License, the Mozilla Public License, the MIT License and more. Many of these licenses do not require that users of software contribute proprietary modifications to the public free of charge. In their efforts to tar the entire open-source movement with the cancer brush, Ballmer and other Microsoft execs consistently and conveniently manage not to understand this.

The requirement that GPL-derived code be given away makes Linux and other free software packages less interesting to software companies, which typically earn their revenues through license fees and royalties. A few software companies have been launched speculatively in the open-source arena; a handful of them might make it by exploiting alternative revenue models based on support, consulting and custom development. But in general, software companies have not rushed to embrace open-source software.

The companies that have the most to gain from open-source software turn out to be—surprise!—hardware companies. Firms like Compaq, Hewlett-Packard and IBM have found that Linux gives them an opportunity to deliver more value to customers at a lower cost. With Linux, hardware makers can adapt and extend the operating system to work more smoothly with hardware, and they needn't negotiate licensing agreements with Redmond. Everybody wins.

And while we're talking about hardware companies, we should throw in the manufacturers of intelligent devices of all kinds: from handheld computers to MP3 players, from Internet-enabled kitchen appliances to automobile dashboards, from ballistic missiles to set-top boxes. For these manufacturers, the availability of a reliable, scalable, Internet-ready, no-cost operating-system solution—based on industry-standard APIs and with full source code—is an unparalleled boon. It's no wonder the embedded world is jumping whole hog into Linux.

It's no wonder traditional software companies view the open-source movement as a threat. In their world view, open source means they can no longer charge for their product, but they still must foot the bill for support, development, marketing, sales, administration and other essential business functions. Revenues decline rapidly to zero while cost reductions are modest at best. It just doesn't add up.

But for hardware companies, open-source software is the right answer. The cost is right. The features are right. The support of open industry standards is right. And the availability of source code means that manufacturers are free to correct bugs, tune performance and modify features as necessary to best support their customers.

It's no wonder Ballmer thinks Linux is a cancer. To Microsoft, it is. But to the people who build computers and intelligent devices—and, therefore, to the people who buy and use them—Linux makes perfect sense. ▮

J.D. Hildebrand is the former editor of such publications as Computer Language, Unix Review and Windows Tech Journal. Reach him at jdh@sdtimes.com.

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WEB SERVICES ARRIVE...SORT OF

Nothing appeals more to the computer-press corps than announcing the latest great thing. Unless you have been doing something productive at work this year, you know from your reading that the greatest of the late, great things is Web services. Bluetooth? you counter. Nope. Wireless? Passé (or in today's parlance, retro). Peer to peer? Cooling quickly. Web services, that's the ticket. They're hot. And suddenly so.

The first news coverage of Web services in SD Times appeared in January, and the roots of the concept don't go much further back. Microsoft's Web-services evangelist (aren't you getting tired of that word?), Charles Fitzgerald, claimed first use was by Microsoft in its DNA announcement in 2000. Maybe the words *Web* and *services* did appear together then, but it's not likely they were used to indicate a specific technological concept. Because of their recency, Web services still lack definition.

So, what are they? Web services are an architecture by which distributed applications can search for, identify and retrieve needed components over the Internet and integrate them into the running application. For example, a Web application that wants to display the temperature in your hometown can find a component on the Web that looks up and returns the text of a weather forecast when handed a ZIP code. Doing so involves the use of three protocols, which have become sufficiently widely accepted that the concept of Web services could take root. These protocols—or more correctly, standards—are Web Services Description Language (WSDL), to describe what the service does; the Universal Description, Discovery and Integration (UDDI) registry, to discover where on the Web you can find the service you're looking for; and, finally, Simple Object Access Protocol (SOAP), which is the protocol for Web services interaction.

MIDDLEWARE WATCH

ANDREW BINSTOCK

The great promise of Web services is that existing code can now be wrapped and published on the Web for use by anyone who can find it. In the general scheme of things, this may not seem like a big deal, but it does have several key benefits. The first is on company intranets. Now all sorts of routines, code fragments, objects and functions can be modularized and posted for use elsewhere in the company. The advantages to software-development efforts alone make this approach valuable.

The second major benefit is for B-to-B customers, especially trading partners or vendors in your supply chain. You can now expose in-house services for them to use in their apps that will execute discrete code functions on your system. This is more than exposing APIs or file formats, since you are providing the actual executable code for them to use. Such an approach raises both parties' confidence that access will be performed correctly.

WSDL and UDDI are not difficult protocols on which to come up to speed. Most competent programmers can do so. And since the latter was designed principally by three companies (Ariba, IBM and Microsoft) and published quickly, the paradigm of Web services went from nonexistent to deployment in pilots in a remarkably short period of time. For this reason, the usual phenomenon of lawn mushrooms might not apply here. This phenomenon occurs whenever a new technology suddenly comes into vogue. Just as suddenly a magazine appears covering the technology, a few books by Prentice Hall and Addison-Wesley appear on bookstore shelves, a handbook by O'Reilly & Associates is announced, and the mandatory flyers for conferences and trade shows appear in your mail and trash barrel. How did all these authors and lecturers come to be such experts given the technology still bears the vernix of a newborn? They appeared overnight as inexplicably as mushrooms on your lawn.

Their quick emergence, though, has created some confusion. In June, I attended a one-day conference on Web services staged by the French venture capitalist firm Partech International. Several presentations, showcasing companies in which Partech has invested, were customer case histories in which things like wireless access to business processes through a Web interface were touted as Web services. Services, sure. Web-enabled? Certainly. But Web services? Nyet.

In fact, the conference—interesting and full of thoughtful analysts and speakers—maintained this strange incorrect definition that any services exposed through the Web were Web services. Clearly, the two concepts are not the same. The conference also failed to tackle the problems that immediately will become central to the deployment of Web services: security and availability. What happens when you let outsiders use your own code to access your business processes? And what happens when the code piece they need is not available? These questions will reappear in future columns, have no fear. ▮

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FEAR AND LOATHING IN ISLANDIA

Shareholders of Computer Associates International Inc. will have a big decision to make at their annual meeting in August, thanks to a nasty proxy fight over control of the corporation.

Will owners support the status quo—Charles Wang and Sanjay Kumar's vision of acquisitions and integration, earnings report estimates that have come under scrutiny, complaints by former employees of layoffs and poor treatment—or will they back the move by Texas billionaire Sam Wyly, who called management "abusive," complained that its accounting practices are suspect, and who, if he wins, has vowed to split the company into bite-sized morsels?

MONEY WATCH

DAVID RUBINSTEIN

The irony of one of the industry's leading acquisitors' being the target of a boardroom takeover is more than a little amusing. But from where I sit, the stockholders are in a no-lose situation.

Wyly, who sold Sterling Software to CA in February 2000 for $4 billion in stock, would split the company into four pieces. This makes sense. CA sells more than 1,244 products, many of which were picked up wholesale during the company's famous shopping sprees and have yet to find a home within a product line cobbled together from previous integrations.

To be fair, CA has recently embarked on an information campaign regarding its "3 over 6" strategy—infrastructure management, information management and process management, which then break down further to include enterprise management, security, storage management, transformation and integration, portal and knowledge management, and predictive analysis and visualization. The plan incorporates many CA solutions in a readily understandable framework. Many of its products, though, are legacy ones that will not show growth and should be spun off so the company can drive forward with its strategy.

The company's stock price is certainly an indicator that growth has stalled. While much of the industry has suffered on Wall Street in the past year and a half, CA has shown a loss of more than 40 percent, as compared with the broader S&P 500 index, which fell only 16 percent. CA was trading at around $31 per share at press time, down from a 52-week high of 54.

For management to stave off this challenge, executives must answer investor questions regarding the company's reporting practices—it blamed an incorrect earnings statement in May on a typographical error—and new business model. They must explain why employees are complaining of layoffs while the company insists that none have taken place. They must show a clear vision for growth in years to come, and lay out a plan to overcome the perception of CA as a corporate Tyrannosaurus rex, devouring everything in its path without a plan for digesting the remains.

During my recent visit to CA's headquarters in Islandia, N.Y., marketing vice president Carl Hartman said, "We're kind of an easy target. I wish [reporters] would complete their research before they write. We have never had official layoffs." Tell that to the hundreds of former CA employees who are officially out of work. Wyly, in a statement heralding the proxy fight, said that he was unhappy with what he called management's bullying and culture of intimidation, calling it harmful to business, the work environment and ultimately to the stock price.

However it comes out, it is the shareholders who will win, as the company gets either a new board to clean house or the old board to come clean.

WHITHER LINUX?

An announcement by LynuxWorks Inc. that it was abandoning plans to go public is not such a surprise. LynuxWorks CEO Inder Singh blamed the move on general market conditions. He could have been referring to Wall Street. But he also could have been commenting on the state of Linux in the industry marketplace.

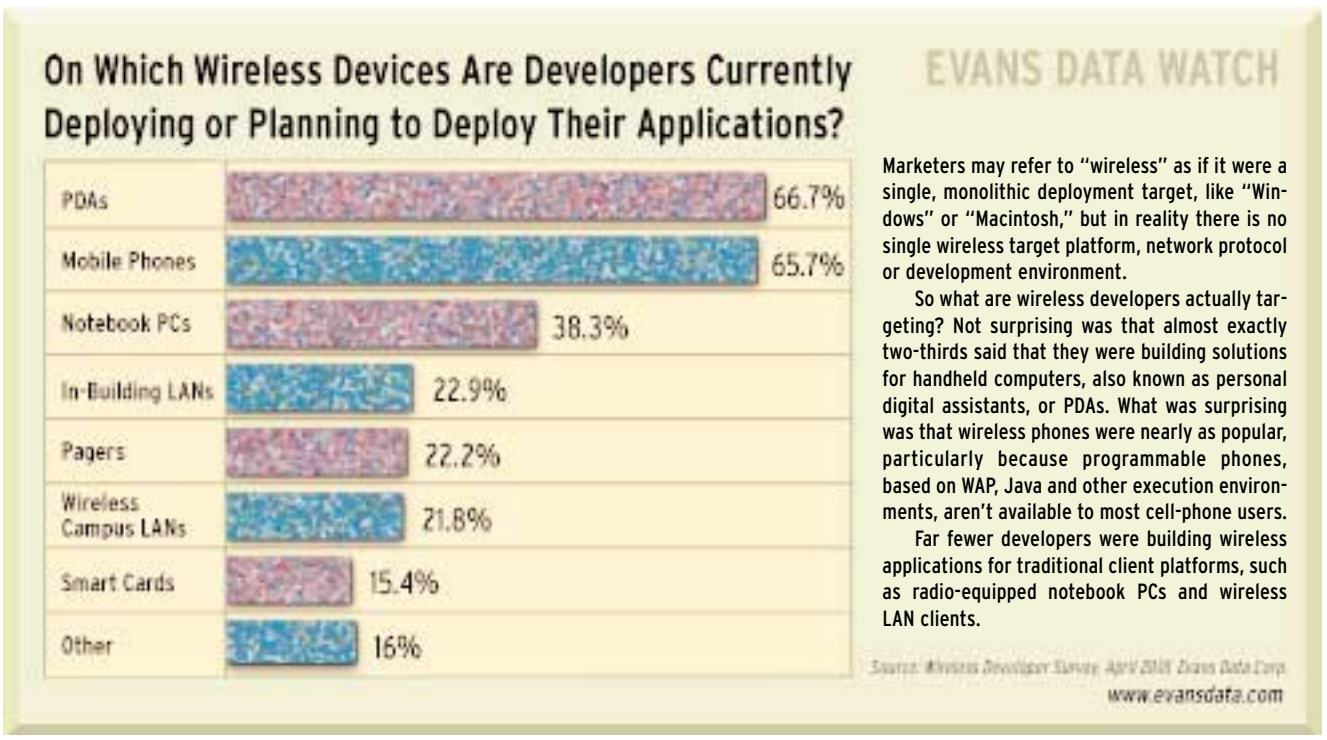
LynuxWorks was not the first Linux company to retreat from an IPO, following similar announcements from TurboLinux and Linuxcare. It seems like only last year that companies such as Red Hat and VA Linux were raising huge amounts of market capital with IPOs.

There are, though, some positive signs for the open-source operating system. Red Hat reported that for the first time it turned a profit, for the quarter ended May 31. The company also rolled out an open-source database based on Postgre SQL for corporate workgroups. Meanwhile, IBM reported a 30 percent increase in the number of Linux applications written for DB2 and WebSphere 4.0.

IBM is focusing on Linux on servers, an area in which the operating system is widely acknowledged as being very stable. Yet the company is trying to push Linux as a tier-one operating system into the business environment, with the idea of making money by providing business value on top of the operating system.

These developments, plus the push for Linux in the embedded world, show that even though the mere mention of the word doesn't generate millions on Wall Street anymore, there certainly is life there.▮

David Rubinstein is executive editor of SD Times.


On Which Wireless Devices Are Developers Currently Deploying or Planning to Deploy Their Applications?
EVANS DATA WATCH
PDAs 66.7%
Mobile Phones 65.7%
Notebook PCs 38.3%
In-Building LANs 22.9%
Pagers 22.2%
Wireless Campus LANs 21.8%
Smart Cards 15.4%
Other 16%
Marketers may refer to "wireless" as if it were a single, monolithic deployment target, like "Windows" or "Macintosh," but in reality there is no single wireless target platform, network protocol or development environment.
So what are wireless developers actually targeting? Not surprising was that almost exactly two-thirds said that they were building solutions for handheld computers, also known as personal digital assistants, or PDAs. What was surprising was that wireless phones were nearly as popular, particularly because programmable phones, based on WAP, Java and other execution environments, aren't available to most cell-phone users.
Far fewer developers were building wireless applications for traditional client platforms, such as radio-equipped notebook PCs and wireless LAN clients.
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BUSINESS BRIEFS

As **Amazon.com** struggles to turn its first profit, the online bookseller is moving into software licensing for small businesses that cannot afford the expense of purchasing and maintaining applications. Amazon will offer licenses for software for such vendors as Computer Associates, McAfee, Microsoft and Symantec, according to the company, which reported it has more than $600 million in capital from which it will build its software site . . . **Neoware Systems Inc.** has agreed to purchase **Boundless Corp.**'s Boundless Technologies' thin-client business, including the Capio product line, SAM remote administration software and associated intellectual properties. Neoware believes the purchase will double its market share and increase its distribution channels while broadening its product offerings . . . **Cape Clear Software Inc.** has completed a $16 million second round of financing from **Accel Partners** and **Greylock Investors** that will allow it to improve and better market its two Web services products, CapeStudio, an XSLT tool for transforming files into WSDL; and CapeConnect, which generates SOAP for EJB components . . . Software vendor **Programmer's Paradise Inc.** has retained the investment banking firm **C.E. Unterberg, Towbin** to work up strategies to boost shareholder value. Programmer's Paradise was trading at $15 per share in July 1999 but has hovered around the $4 mark for the past year.

CALENDAR OF EVENTS

Macworld Conference & Expo — July 17-20
New York
IDG WORLD EXPO
www.macworldexpo.com

Borland Conference — July 21-25
Long Beach, Calif.
BORLAND SOFTWARE CORP.
www.borland.com/conf2001

Wireless DevCon — July 22-24
New York
CAMELOT COMMUNICATIONS CORP.
www.wirelessdevcon2001.com

Rational User Conference — July 22-26
Denver
RATIONAL SOFTWARE CORP.
www.rational.com/events/ruc

XP Universe — July 23-25
Raleigh, N.C.
OBJECT MENTOR INC.
www.xpuniverse.com

Conference.NET — Aug. 13-15
San Francisco
DEVELOPMENTOR INC.
www.develop.com/conferences/dotnet

LinuxWorld Conference & Expo — Aug. 26-30
San Francisco
IDG WORLD EXPO
www.linuxworldexpo.com

Software Test Automation Conference & Expo — Aug. 27-30
Boston
SOFTWARE QUALITY ENGINEERING
www.sqe.com/testautomation

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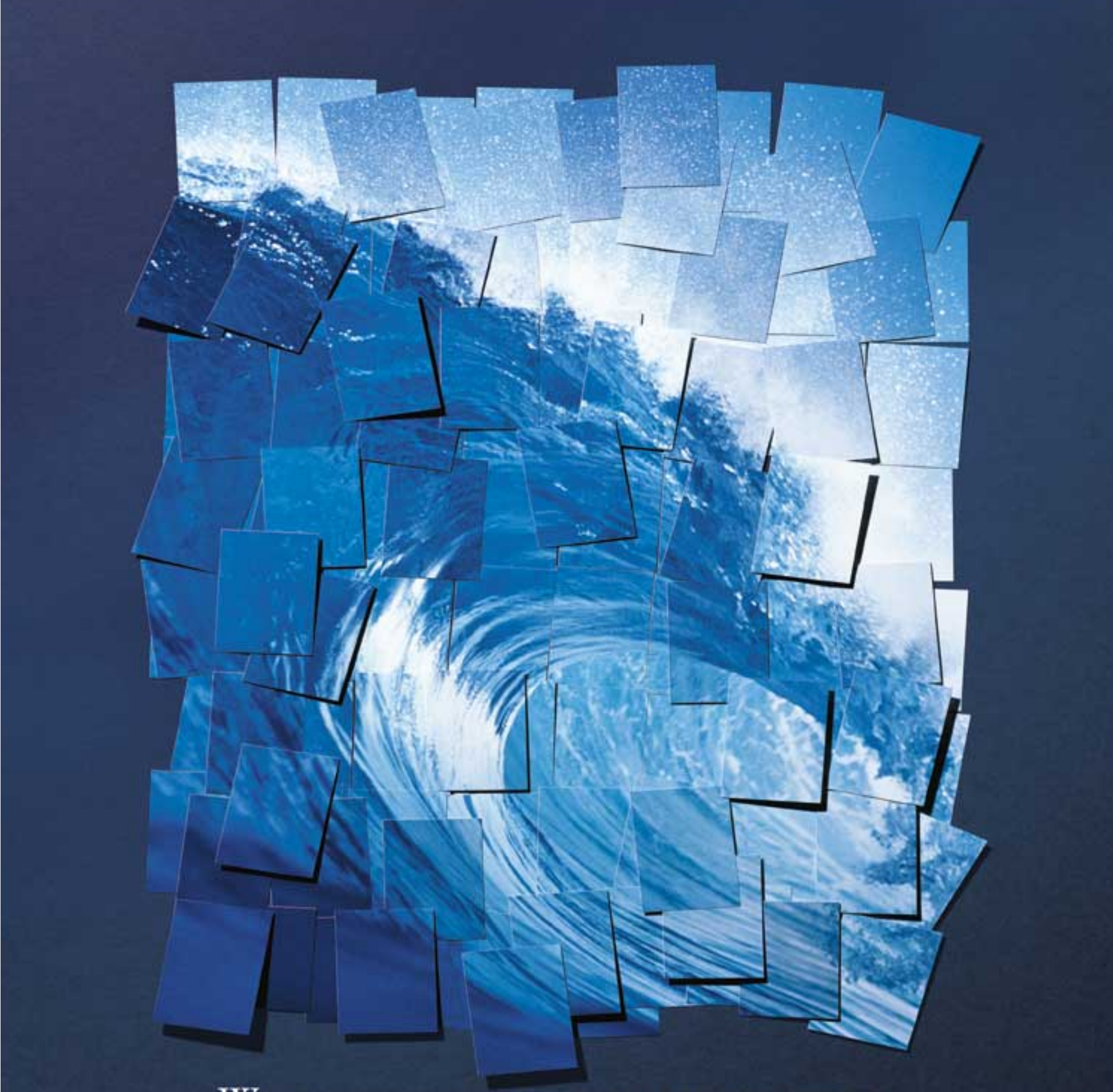

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